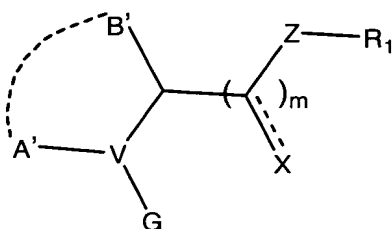


I claim:

1. A method for the prevention or treatment of sensorineural hearing loss which comprises administering to a warm-blooded animal a sensorineurotrophic compound of the formula (I'):



(I')

wherein

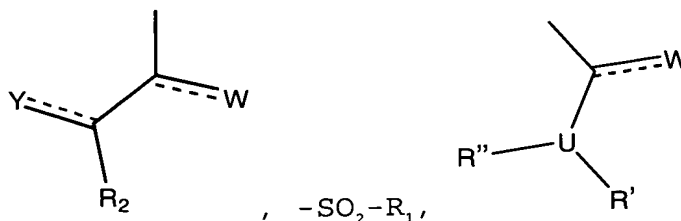
A' is hydrogen, C₁ or C₂ alkyl, or benzyl;

B' is C₁-C₄ straight or branched chain alkyl, benzyl or cyclohexylmethyl; or,

A' and B', taken together with the atoms to which they are attached, form a 5-7 membered saturated, unsaturated or aromatic heterocyclic or carbocyclic ring which contains one or more additional O, C(R₁)₂, S(O)_p, N, NR₁, or NR₅ atoms;

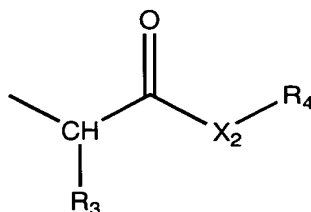
V is CH, S, or N;

G is



each R_1 , independently, is hydrogen, C_1-C_9 straight or branched chain alkyl, or C_2-C_9 straight or branched chain alkenyl or alkynyl, C_3-C_9 cycloalkyl, C_5-C_9 cycloalkenyl, a carboxylic acid or carboxylic acid isostere, $N(R_4)_n$, Ar_1 , Ar_4 or K-L wherein said alkyl, cycloalkyl, cycloalkenyl, alkynyl, alkenyl, Ar_1 or Ar_4 is optionally substituted with one or more substituent(s) independently selected from the group consisting of:

2-furyl, 2-thienyl, pyridyl, phenyl, C_3-C_6 cycloalkyl wherein said furyl, thienyl, pyridyl, phenyl or cycloalkyl group optionally is substituted with C_1-C_4 alkoxy, $(Ar_1)_n$, halo, halo- C_1-C_6 -alkyl, carbonyl, thiocarbonyl, C_1-C_6 thioester, cyano, imino, $COOR_6$ in which R_6 is C_1-C_9 straight or branched chain alkyl or alkenyl, hydroxy, nitro, trifluoromethyl, C_1-C_6 alkoxy, C_2-C_4 alkenyloxy, C_1-C_6 alkylaryloxy C_1-C_6 aryloxy, aryl- (C_1-C_6) -alkyloxy, phenoxy, benzyloxy, thio- (C_1-C_6) -alkyl, C_1-C_6 -alkylthio, sulfhydryl, sulfonyl, amino, (C_1-C_6) -mono- or di-alkylamino, amino- (C_1-C_6) -alkyl, aminocarboxy, C_3-C_8 cycloalkyl, C_1-C_6 straight or branched chain alkyl, C_2-C_6 straight or branched chain alkenyl optionally substituted with $(Ar_1)_n$, C_3-C_8 cycloalkyl, C_1-C_6 straight or branched chain alkyl, C_2-C_6 straight or branched chain alkenyl substituted with C_3-C_8 cycloalkyl, C_3-C_8 cycloalkyl, and Ar_2 , and, wherein any carbon atom of an alkyl or alkenyl group may optionally be replaced with O, NR_5 , or $S(O)_p$; or, R_1 is a moiety of the formula:



wherein:

5 R_3 is $\text{C}_1\text{-C}_9$ straight or branched chain alkyl which is optionally substituted with $\text{C}_3\text{-C}_8$ cycloalkyl or Ar_1 ;

10 X_2 is O or NR_6 , wherein R_6 is selected from the group consisting of hydrogen, $\text{C}_1\text{-C}_6$ straight or branched chain alkyl, and $\text{C}_2\text{-C}_6$ straight or branched chain alkenyl;

15 R_4 is selected from the group consisting of phenyl, benzyl, $\text{C}_1\text{-C}_5$ straight or branched chain alkyl, $\text{C}_2\text{-C}_5$ straight or branched chain alkenyl, $\text{C}_1\text{-C}_5$ straight or branched chain alkyl substituted with phenyl, and $\text{C}_2\text{-C}_5$ straight or branched chain alkenyl substituted with phenyl;

20 R_2 is $\text{C}_1\text{-C}_9$ straight or branched chain alkyl, $\text{C}_2\text{-C}_9$ straight or branched chain alkenyl, $\text{C}_3\text{-C}_8$ cycloalkyl, $\text{C}_5\text{-C}_7$ cycloalkenyl or Ar_1 , wherein said alkyl, alkenyl, cycloalkyl, or cycloalkenyl is optionally substituted with one
 25 or more substituents selected from the group consisting of $\text{C}_1\text{-C}_6$ straight or branched chain alkyl, $\text{C}_2\text{-C}_6$ straight or branched chain alkenyl, $\text{C}_3\text{-C}_8$ cycloalkyl, $\text{C}_5\text{-C}_7$ cycloalkenyl, $(\text{Ar}_1)_n$ and hydroxy; or,
 30

R_2 is either hydrogen or P; Y is either oxygen or CH-P, provided that if R_2 is hydrogen, then Y is CH-P, or if Y is oxygen then R_2 is P;

5 P is hydrogen, O-(C_1 - C_4 straight or branched chain alkyl), O-(C_2 - C_4 straight or branched chain alkenyl), C_1 - C_6 straight or branched chain alkyl, C_2 - C_6 straight or branched chain alkenyl, C_5 - C_7 cycloalkyl, C_5 - C_7 cycloalkenyl
10 substituted with C_1 - C_4 straight or branched chain alkyl or C_2 - C_4 straight or branched chain alkenyl, (C_1 - C_4 alkyl or C_2 - C_4 alkenyl)- Ar_5 , or Ar_5

15 Ar_1 or Ar_2 , independently, is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is optionally substituted with one or more
20 substituent(s) independently selected from the group consisting of halo, hydroxy, nitro, trifluoromethyl, C_1 - C_6 straight or branched chain alkyl, C_2 - C_6 straight or branched chain alkenyl, C_3 - C_8 cycloalkyl, C_5 - C_7 cycloalkenyl, C_1 - C_4 alkoxy, C_2 - C_4 alkenyloxy, phenoxy,
25 benzyloxy, and amino; wherein the individual ring contains 5-8 members; and wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group
30 consisting of O, N, and S, and, wherein any aromatic or tertiary alkylamine is optionally oxidized to a corresponding N-oxide;

m is 0 or 1

35 n is 1 or 2;

p is 0, 1, or 2;

t is 0, 1, 2, 3, or 4;

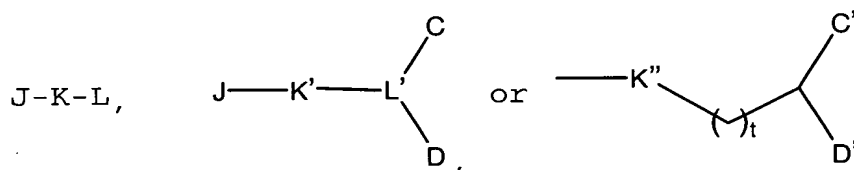
5

X is O, CH₂ or S;

W and Y, independently, are O, S, CH₂ or H₂;

10

Z is C(R₁)₂, O, S, a direct bond or NR₁; or, Z-R₁ is



wherein:

15

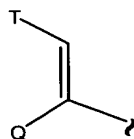
C and D are, independently, hydrogen, Ar₄, Ar₁, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, Ar₁ and Ar₄; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆ alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, haloalkyl, thiocarbonyl, C₁-C₆ ester, C₁-C₆ thioester, C₁-C₆ alkoxy, C₁-C₆ alkenoxy, cyano, nitro, imino, C₁-C₆ alkylamino, amino-(C₁-C₆)alkyl, sulfhydryl, thio-(C₁-C₆)alkyl, or sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or

30

alkenyl is optionally replaced with O, NR₅, or (SO)_p;

5 C' and D' are independently hydrogen, Ar₅, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₅, wherein, one or two carbon atom(s) of said
10 alkyl or alkenyl may be substituted with one or two heteroatom(s) independently selected from the group consisting of oxygen, sulfur, SO, and SO₂ in chemically reasonable substitution patterns, or

15



20 wherein Q is hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; and

T is Ar₅ or C₅-C₇ cycloalkyl substituted at positions 3 and 4 with substituents independently selected from the group
25 consisting of hydrogen, hydroxy, O-(C₁-C₄ alkyl), O-(C₂-C₄ alkenyl), and carbonyl
J is O, NR₁, S, or (CR₁)₂;

30 K is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more

substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar₃; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl or Ar₃, is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl or Ar₃, is optionally replaced with O, NR''', or S(O)_p;

K' is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, haloalkyl, thiocarbonyl, ester, thioester, alkoxy, alkenoxy, cyano, nitro, imino, alkylamino, aminoalkyl, sulfhydryl, thioalkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NR₅, S(O)_p;

K'' is C(R₁)₂, O, S, a direct bond or NR₁,

R''' is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring,

wherein said ring is optionally fused to an Ar₃ group;

5 L is an aromatic amine or a tertiary amine oxidized to a corresponding N-oxide; said aromatic amine being selected from the group consisting of pyridyl, pyrimidyl, quinolinyl, and isoquinolinyl, said aromatic amine being optionally substituted with one or
10 more substituent(s) independently selected from the group consisting of halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino; and wherein
15 said tertiary amine is NR_xR_yR_z, wherein R_x, R_y, and R_z are independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl and C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar₃; wherein said
20 alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar₃ is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen;
25 wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar₃ is optionally replaced with O, NR', S(O)_p;

35 L' is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said

alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, haloalkyl, thiocarbonyl, ester, thioester, alkoxy, alkenoxy, cyano, nitro, imino, alkylamino, aminoalkyl, sulfhydryl, thioalkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NR₅, S(O)_p

Ar₃ is selected from the group consisting of pyrrolidinyl, pyridyl, pyrimidyl, pyrazyl, pyridazyl, quinolinyl, and isoquinolinyl; or,

Ar₄ is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is optionally substituted with one or more substituent(s) independently selected from the group consisting of alkylamino, amido, amino, aminoalkyl, azo, benzyloxy, C₁-C₉ straight or branched chain alkyl, C₁-C₉ alkoxy, C₂-C₉ alkenyloxy, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, carbonyl, carboxy, cyano, diazo, ester, formanilido, halo, haloalkyl, hydroxy, imino, isocyano, isonitrilo, nitrilo, nitro, nitroso, phenoxy, sulfhydryl, sulfonylsulfoxy, thio, thioalkyl, thiocarbonyl, thiocyano, thioester, thioformamido, trifluoromethyl, and carboxylic and heterocyclic moieties; wherein the individual alicyclic or aromatic ring contains 5-8 members and wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group

consisting of O, N, and S; and wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

- 5 Ar_5 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, monocyclic and bicyclic heterocyclic ring systems with individual ring
10 sizes being 5 or 6 which contain in either or both rings a total of 1-4 heteroatom(s) independently selected from the group consisting of oxygen, nitrogen and sulfur; wherein Ar_5 optionally contains 1-3
15 substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, hydroxymethyl, nitro, CF_3 , trifluoromethoxy, $\text{C}_1\text{-C}_6$ straight or branched chain alkyl, $\text{C}_2\text{-C}_6$ straight or branched chain alkenyl, O-($\text{C}_1\text{-C}_4$
20 straight or branched chain alkyl), O-($\text{C}_2\text{-C}_4$ straight or branched chain alkenyl), O-benzyl, O-phenyl, amino, 1,2-methylenedioxy, carbonyl, and phenyl;
- 25 R_5 is selected from the group consisting of hydrogen, $\text{C}_1\text{-C}_6$ straight or branched chain alkyl, $\text{C}_3\text{-C}_6$ straight or branched chain alkenyl or alkynyl, and $\text{C}_1\text{-C}_4$ bridging alkyl wherein a bridge is formed between the nitrogen and
30 carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar_4 or Ar_1 group;

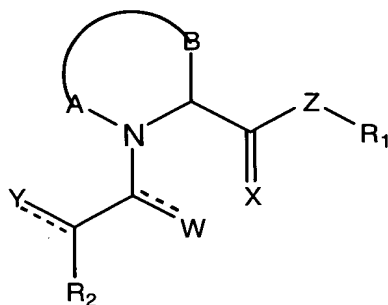
U is either O or N, provided that:

when U is O, then R' is a lone pair of electrons and R'' is selected from the group consisting of Ar₄, C₃-C₈ cycloalkyl, C₁-C₉ straight or branched chain alkyl, and C₂-C₉ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar₄ and C₃-C₈ cycloalkyl; and

when U is N, then R' and R'' are, independently, selected from the group consisting of hydrogen, Ar₄, C₃-C₁₀ cycloalkyl, a C₇-C₁₂ bi- or tri-cyclic carbocycle, C₁-C₉ straight or branched chain alkyl, and C₂-C₉ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar₄ and C₃-C₈ cycloalkyl; or R' and R'' are taken together to form a heterocyclic 5- or 6-membered ring selected from the group consisting of pyrrolidine, imidazolidine, pyrazolidine, piperidine, and piperazine; or,

a pharmaceutically acceptable salt, ester or solvate thereof.

2. A method as claimed in Claim 1 in which the sensorineurotrophic compound is a compound of formula I:



(I)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

A and B, together with the nitrogen and carbon atoms to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing one or more heteroatom(s) independently selected from the group consisting of O, S, SO, SO₂, N, NH, and NR₂;

X is either 0 or S;

15 Z is either S, CH₂, CHR₁ or CR₁R₃;

W and Y are independently O, S, CH₂ or H₂;

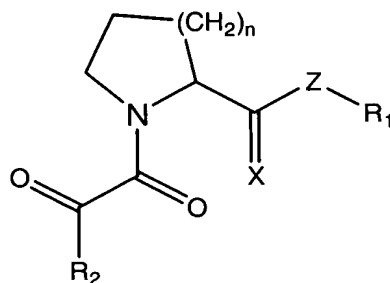
R₁ and R₃ are independently C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is substituted with one or more substituent(s) independently selected from the group consisting of (Ar₁)_n, C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with (Ar₁)_n, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with C₃-C₈ cycloalkyl, and Ar₂;

n is 1 or 2;

R_2 is either C_1 - C_9 straight or branched chain alkyl, C_2 - C_9 straight or branched chain alkenyl, C_3 - C_8 cycloalkyl, C_5 - C_7 cycloalkenyl, or Ar_1 , wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is either
5 unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C_1 - C_4 straight or branched chain alkyl, C_2 - C_4 straight or branched chain alkenyl, and hydroxy; and

Ar_1 and Ar_2 are independently an alicyclic or
10 aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein said ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxyl, nitro, trifluoromethyl, C_1 - C_6 straight or branched chain
15 alkyl, C_2 - C_6 straight or branched chain alkenyl, C_1 - C_4 alkoxy, C_2 - C_4 alkenyloxy, phenoxy, benzyloxy, and amino; wherein the individual ring size is 5-8 members; and wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N,
20 and S.

3. A method as claimed in Claim 2 in which the sensorineurotrophic compound is a compound of formula II:



(II)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

n is 1 or 2;

X is O or S;

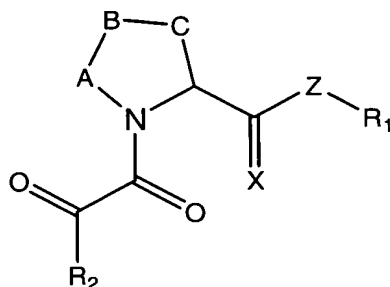
Z is selected from the group consisting of S, CH₂, CHR₁, and CR₁R₃;

5 R₁ and R₃ are independently selected from the group consisting of C₁-C₅ straight or branched chain alkyl, C₂-C₅ straight or branched chain alkenyl, and Ar₁, wherein said alkyl, alkenyl or Ar₁ is unsubstituted or substituted with one or more substituent(s) independently
10 selected from the group consisting of halo, nitro, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, hydroxy, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, amino, and Ar₁;

 R₂ is selected from the group consisting of C₁-C₉
15 straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, and Ar₁; and

 Ar₁ is phenyl, benzyl, pyridyl, fluorenyl, thioindolyl or naphthyl, wherein said Ar₁ is
20 unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, trifluoromethyl, hydroxy, nitro, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy,
25 phenoxy, benzyloxy, and amino.

4. A method as claimed in Claim 2 in which the sensorineurotrophic compound is a compound of formula III:



(III)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

10 A, B, and C are independently CH₂, O, S, SO, SO₂, NH or NR₂;

X is O or S;

Z is S, CH₂, CHR₁ or CR₁R₃;

15 R₁ and R₃ are independently C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is substituted with one or more substituent(s) independently selected from the group consisting of (Ar₁)_n, C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with (Ar₁)_n, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with C₃-C₈ cycloalkyl, and Ar₂;

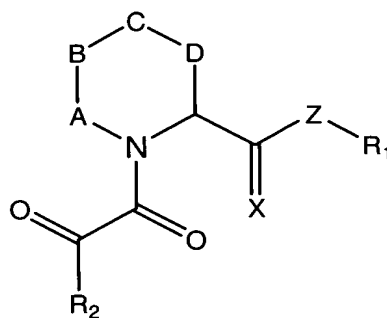
n is 1 or 2;

25 R₂ is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl or Ar₁, wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is either unsubstituted or substituted with one or more

substituent(s) independently selected from the group consisting of C₁-C₄ straight or branched chain alkyl, C₂-C₄ straight or branched chain alkenyl, and hydroxyl; and

Ar₁ and Ar₂ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein said ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxyl, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino; wherein the individual ring size is 5-8 members; and wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S.

5. A method as claimed in Claim 2 in which the sensorineurotrophic compound is a compound of formula IV:



(IV)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

A, B, C and D are independently CH₂, O, S, SO, SO₂, NH or NR₂;

X is O or S;

Z is S, CH₂, CHR₁ or CR₁R₃;

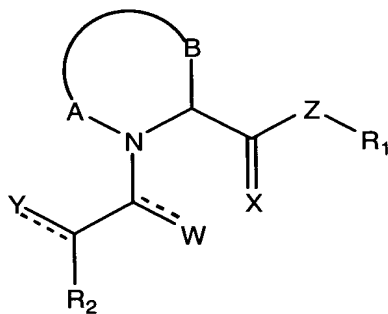
R_1 and R_3 are independently C_1 - C_6 straight or branched chain alkyl or C_2 - C_6 straight or branched chain alkenyl, wherein said alkyl or alkenyl is substituted with one or more substituent(s) independently selected
5 from the group consisting of $(Ar_1)_n$, C_1 - C_6 straight or branched chain alkyl or C_2 - C_6 straight or branched chain alkenyl substituted with $(Ar_1)_n$, C_3 - C_8 cycloalkyl, C_1 - C_6 straight or branched chain alkyl or C_2 - C_6 straight or branched chain alkenyl substituted with C_3 - C_8 cycloalkyl,
10 and Ar_2 ;

n is 1 or 2;

R_2 is either C_1 - C_9 straight or branched chain alkyl, C_2 - C_9 straight or branched chain alkenyl, C_3 - C_8 cycloalkyl, C_5 - C_7 cycloalkenyl or Ar_1 , wherein said alkyl,
15 alkenyl, cycloalkyl or cycloalkenyl is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C_3 - C_8 cycloalkyl, C_1 - C_4 straight or branched chain alkyl, C_2 - C_4 straight or branched chain alkenyl,
20 and hydroxyl; and

Ar_1 and Ar_2 are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein said ring is either unsubstituted or substituted with one or more substituent(s) independently
25 selected from the group consisting of halo, hydroxyl, nitro, trifluoro-methyl, C_1 - C_6 straight or branched chain alkyl, C_2 - C_6 straight or branched chain alkenyl, C_1 - C_4 alkoxy, C_2 - C_4 alkenyloxy, phenoxy, benzyloxy, and amino; wherein the individual ring size is 5-8 members; and
30 wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S.

6. A method as claimed in Claim 1 in which the sensorineurotrophic agent may be a compound of formula VI:



(VI)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

A and B, together with the nitrogen and carbon atoms to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing, in addition to the nitrogen atom, one or more heteroatom(s) independently selected from the group consisting of O, S, SO, SO₂, N, NH, and NR₁;

X is O or S;

Z is O, NH or NR₁;

W and Y are independently O, S, CH₂ or H₂;

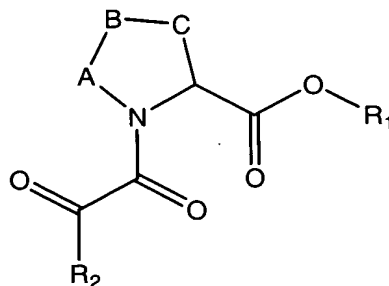
R₁ is C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, which is substituted with one or more substituent(s) independently selected from the group consisting of (Ar₁)_n, C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with (Ar₁)_n, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with C₃-C₈ cycloalkyl, and Ar₂;

n is 1 or 2;

R₂ is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain or alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is either
5 unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₄ straight or branched chain alkyl, C₂-C₄ straight or branched chain alkenyl, and hydroxyl; and

Ar₁ and Ar₂ are independently an alicyclic or
10 aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxyl, nitro, trifluoromethyl, C₁-C₆ straight or branched chain
15 alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino; wherein the individual ring size is 5-8 members; and wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N,
20 and S.

7. The method of Claim 6 in which the sensorineurotrophic compound is a compound of formula VII:



(VII)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

A, B and C are independently CH₂, O, S, SO, SO₂, NH or NR₁;

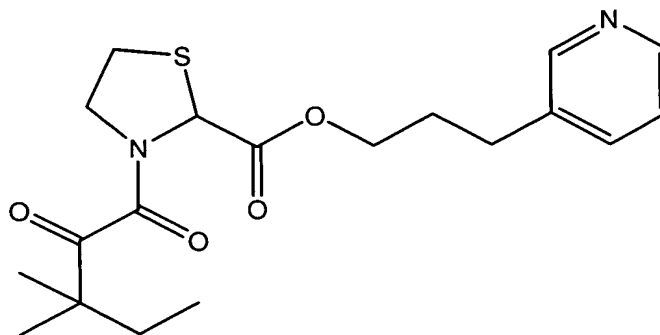
R₁ is C₁-C₅ straight or branched chain alkyl or C₂-C₅ straight or branched chain alkenyl, which is substituted
5 with one or more substituent(s) independently selected from the group consisting of (Ar₁)_n and C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with (Ar₁)_n;

n is 1 or 2;

10 R₂ is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁; and

Ar₁ is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring
15 is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxyl, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy,
20 phenoxy, benzyloxy, and amino; wherein the individual ring size is 5-8 members; and wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S.

25 8. The method of Claim 7 in which the sensorineurotrophic compound is:



9. A method as claimed in Claim 7 in which:

A is CH₂;

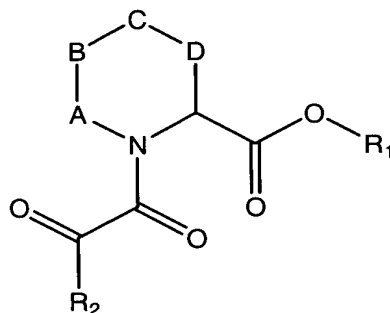
B is CH₂ or S;

C is CH₂ or NH;

5 R₁ is selected from the group consisting of 3-phenylpropyl and 3-(3-pyridyl)propyl; and

R₂ is selected from the group consisting of 1,1-dimethylpropyl, cyclohexyl, and *tert*-butyl.

10 10. A method as claimed in Claim 6 in which the sensorineurotrophic compound is a compound of formula VIII:



(VIII)

15

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

A, B, C and D are independently CH₂, O, S, SO, SO₂, NH or NR₁;

20

R₁ is C₁-C₅ straight or branched chain alkyl or C₂-C₅ straight or branched chain alkenyl, which is substituted with one or more substituent(s) independently selected from the group consisting of (Ar₁)_n and C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain

25

alkenyl substituted with (Ar₁)_n;

n is 1 or 2;

R₂ is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁; and

Ar₁ is an alicyclic or aromatic, mono-, bi- or
5 tricyclic, carbo- or heterocyclic ring, wherein the ring
is either unsubstituted or substituted with one or more
substituent(s) independently selected from the group
consisting of halo, hydroxyl, nitro, trifluoromethyl, C₁-
C₆ straight or branched chain alkyl, C₂-C₆ straight or
10 branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy,
phenoxy, benzyloxy, and amino; wherein the individual
ring size is 5-8 members; and wherein the heterocyclic
ring contains 1-6 heteroatom(s) independently selected
from the group consisting of O, N, and S.

15

11. A method of Claim 10 in which:

A is CH₂;

B is CH₂;

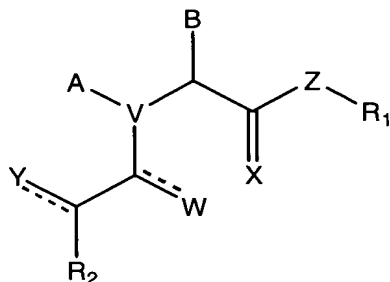
C is S, O or NH;

20 D is CH₂;

R₁ is selected from the group consisting of 3-phenylpropyl and (3,4,5-trimethoxy)phenylpropyl; and

R₂ is selected from the group consisting of 1,1-dimethylpropyl, cyclohexyl, *tert*-butyl, phenyl, and
25 3,4,5-trimethoxyphenyl.

12. A method as claimed in Claim 1 in which the sensorineurotrophic agent may be a compound of formula IX:



(IX)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

V is CH, N, or S;

A and B, together with V and the carbon atom to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing, in addition to V, one or more heteroatom(s) independently selected from the group consisting of O, S, SO, SO₂, N, NH, and NR;

R is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₉ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₃, wherein R is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, halo-C₁-C₆-alkyl, carbonyl, carboxy, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, thio-C₁-C₆-alkyl, C₁-C₆-alkylthio, sulfhydryl, amino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, aminocarboxyl, and Ar₄;

Ar₃ and Ar₄ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring; wherein the individual ring size is 5-8 members;

wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and

X is O or S;

5 Z is O, NH or NR₁;

W and Y are independently O, S, CH₂ or H₂;

R₁ is C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, which is substituted with one or more substituent(s) independently selected
10 from the group consisting of (Ar₁)_n, C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with (Ar₁)_n, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with C₃-C₈ cycloalkyl,
15 and Ar₂;

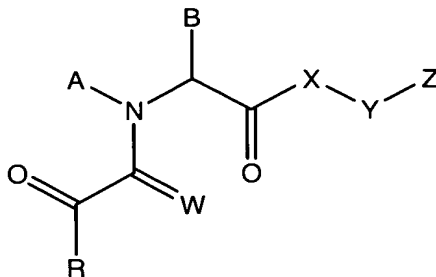
n is 1 or 2;

R₂ is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain or alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, wherein said
20 alkyl, alkenyl, cycloalkyl or cycloalkenyl is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₄ straight or branched chain alkyl, C₂-C₄ straight or branched chain alkenyl, and hydroxyl; and

25 Ar₁ and Ar₂ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxyl,
30 nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino; wherein the individual ring size is 5-8 members; and wherein the heterocyclic ring contains 1-6 heteroatom(s)

independently selected from the group consisting of O, N, and S.

13. A method as claimed in Claim 1 in which the
5 sensorineurotrophic compound is a compound of formula X:



(X)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

- 10 A and B, together with the nitrogen and carbon atoms to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing one or more heteroatom(s) independently selected from the group consisting of CH, CH₂, O, S, SO,
15 SO₂, N, NH, and NR₁;

W is O, S, CH₂, or H₂;

- R is C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, which is optionally substituted
20 with one or more substituent(s) independently selected from the group consisting of C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, and Ar₂;

- Ar₁ and Ar₂ are independently selected from the group consisting of 1-naphthyl, 2-naphthyl, 1-indolyl, 2-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, having one or
25 more substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl,

C₂-C₆ straight or branched chain alkenyl, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

X is O, NH, NR₁, S, CH, CR₁, or CR₁R₃;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl;
5 wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-
10 C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl,
15 cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄
20 bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Z is an aromatic amine or a tertiary amine oxidized
25 to a corresponding N-oxide;

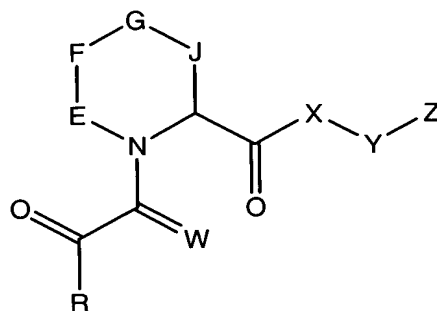
said aromatic amine is selected from the group consisting of pyridyl, pyrimidyl, quinolinyl, or isoquinolinyl, which is either unsubstituted or substituted with one or more substituent(s) independently
30 selected from the group consisting of halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

said tertiary amine is $\text{NR}_4\text{R}_5\text{R}_6$, wherein R_4 , R_5 , and R_6 are independently selected from the group consisting of C_1 - C_6 straight or branched chain alkyl or C_2 - C_6 straight or branched chain alkenyl optionally substituted with one or more substituent(s) independently selected from the group consisting of C_1 - C_6 straight or branched chain alkyl, C_2 - C_6 straight or branched chain alkenyl, C_3 - C_8 cycloalkyl, C_5 - C_7 cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C_1 - C_4 alkyl, C_2 - C_4 alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR_1 , S, SO, or SO_2 ;

Ar is selected from the group consisting of pyrrolidinyl, pyridyl, pyrimidyl, pyrazyl, pyridazyl, quinolinyl, and isoquinolinyl; and

R_1 and R_3 are independently hydrogen, C_1 - C_4 straight or branched chain alkyl, C_3 - C_4 straight or branched chain alkenyl or alkynyl, or Y-Z.

14. A method as claimed in Claim 13 in which the sensorineurotrophic compound is a compound of formula XI:



(XI)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

E, F, G and J are independently CH₂, O, S, SO, SO₂, NH or NR₁;

W is O, S, CH₂, or H₂;

R is C₁-C₆ straight or branched chain alkyl, C₂-C₆
5 straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, which is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, and Ar₁;

10 Ar₁ is selected from the group consisting of 1-naphthyl, 2-naphthyl, 1-indolyl, 2-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl, having one or more substituent(s) independently selected from the group consisting of
15 hydrogen, halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

X is O, NH, NR₁, S, CH, CR₁, or CR₁R₃;

20 Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched
25 chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen;
30 wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄

straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said
5 ring is optionally fused to an Ar group;

Z is an aromatic amine or a tertiary amine oxidized to a corresponding N-oxide;

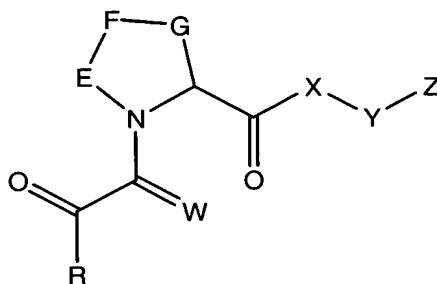
said aromatic amine is pyridyl, pyrimidyl, quinolinyl, and isoquinolinyl, which is either
10 unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy,
15 phenoxy, benzyloxy, and amino;

said tertiary amine is NR₄R₅R₆, wherein R₄, R₅, and R₆ are independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl and C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl
20 is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein
25 said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₁, S, SO, or SO₂;

30 Ar is selected from the group consisting of pyrrolidinyl, pyridyl, pyrimidyl, pyrazyl, pyridazyl, quinolinyl, and isoquinolinyl; and

R_1 and R_3 are independently hydrogen, C_1 - C_4 straight or branched chain alkyl, C_3 - C_4 straight or branched chain alkenyl or alkynyl, or Y-Z.

- 5 15. A method as claimed in Claim 13 in which the sensorineurotrophic compound is a compound of formula XII:



(XII)

- 10 or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

E, F, and G are independently CH_2 , O, S, SO, SO_2 , NH or NR_1 ;

W is O, S, CH_2 , or H_2 ;

- 15 R is C_1 - C_6 straight or branched chain alkyl, C_2 - C_6 straight or branched chain alkenyl, C_3 - C_8 cycloalkyl, C_5 - C_7 cycloalkenyl, or Ar_1 , which is optionally substituted with one or more substituent(s) independently selected from the group consisting of C_1 - C_4 alkyl, C_2 - C_4 alkenyl, hydroxy, C_3 - C_8 cycloalkyl, C_5 - C_7 cycloalkenyl, and Ar_1 ;
- 20

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 1-indolyl, 2-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, having one or more substituent(s)

- 25 independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, C_1 - C_6 straight or branched chain alkyl, C_2 - C_6 straight or branched chain alkenyl, C_2 - C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

X is O, NH, NR₁, S, CH, CR₁, or CR₁R₃;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted
5 with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl,
10 cycloalkenyl, or Ar is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

15 R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain
20 containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Z is an aromatic amine or a tertiary amine oxidized to a corresponding N-oxide;

said aromatic amine is pyridyl, pyrimidyl,
25 quinolinyl, or isoquinolinyl, which is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or
30 branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

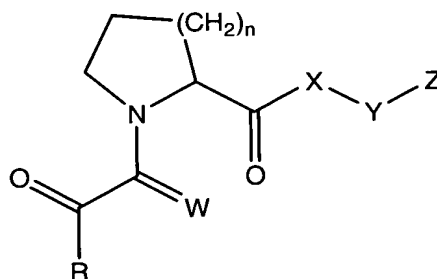
said tertiary amine is NR₄R₅R₆, wherein R₄, R₅, and R₆ are independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl and C₂-C₆ straight

or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or
5 branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of
10 said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₁, S, SO, or SO₂;

Ar is selected from the group consisting of pyrrolidinyl, pyridyl, pyrimidyl, pyrazyl, pyridazyl, quinolinyl, and isoquinolinyl; and

15 R₁ and R₃ are independently hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, or Y-Z.

16. A method as Claimed in Claim 13 in which the
20 sensorineurotrophic compound is a compound of formula XIII:



(XIII)

or a pharmaceutically acceptable salt, ester, or solvate
25 thereof, wherein:

n is 1, 2, or 3, forming a 5-7 member heterocyclic ring;

W is O, S, CH₂, or H₂;

R is C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, which is optionally substituted with one or more substituent(s) independently selected
5 from the group consisting of C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, and Ar₁;

Ar₁ is selected from the group consisting of 1-naphthyl, 2-naphthyl, 1-indolyl, 2-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-
10 pyridyl and phenyl, having one or more substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₂-C₄ alkenyloxy, phenoxy,
15 benzyloxy, and amino;

X is O, NH, NR₁, S, CH, CR₁, or CR₁R₃;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted
20 with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄
25 alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

30 R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain

containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Z is an aromatic amine or a tertiary amine oxidized to a corresponding N-oxide;

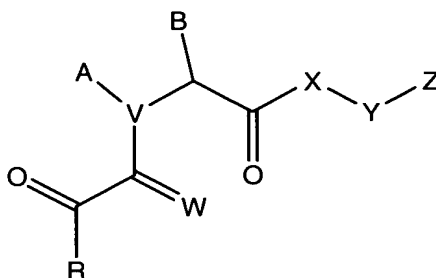
5 said aromatic amine is pyridyl, pyrimidyl, quinolinyl, or isoquinolinyl, which is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxy, nitro, trifluoromethyl, C₁-
10 C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

 said tertiary amine is NR₄R₅R₆, wherein R₄, R₅, and R₆ are independently selected from the group consisting of
15 C₁-C₆ straight or branched chain alkyl and C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or
20 branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of
25 said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₁, S, SO, or SO₂;

 Ar is selected from the group consisting of pyrrolidinyl, pyridyl, pyrimidyl, pyrazyl, pyridazyl, quinolinyl, and isoquinolinyl; and

30 R₁ and R₃, independently, are hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, or Y-Z.

17. A method as claimed in Claim 1 in which the sensorineurotrophic agent may be a compound of formula XIV:



(XIV)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

V is CH, N, or S;

A and B, together with V and the carbon atom to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing, in addition to V, one or more heteroatom(s) independently selected from the group consisting of O, S, SO, SO₂, N, NH, and NR₇;

R₇ is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₉ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₃, wherein R₇ is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, halo-C₁-C₆-alkyl, carbonyl, carboxy, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, thio-C₁-C₆-alkyl, C₁-C₆-alkylthio, sulfhydryl, amino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, aminocarboxyl, and Ar₄;

Ar₃ and Ar₄ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring; wherein the individual ring size is 5-8 members;

wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and

W is O, S, CH₂, or H₂;

5 R is C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, which is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₄ alkyl, C₂-C₄ alkenyl,
10 hydroxy, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, and Ar₂;

Ar₁ and Ar₂ are independently selected from the group consisting of 1-naphthyl, 2-naphthyl, 1-indolyl, 2-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, having one or
15 more substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

20 X is O, NH, NR₁, S, CH, CR₁, or CR₁R₃;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected
25 from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄
30 alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the
5 nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Z is an aromatic amine or a tertiary amine oxidized to a corresponding N-oxide;

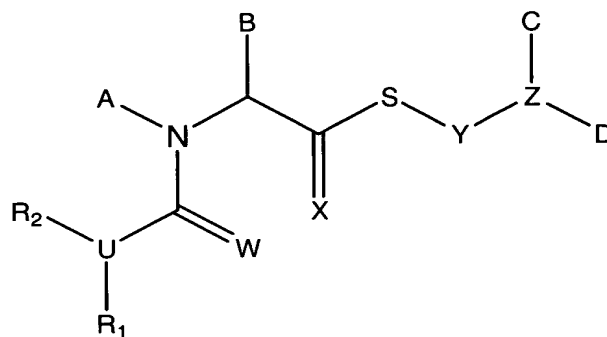
10 said aromatic amine is selected from the group consisting of pyridyl, pyrimidyl, quinolinyl, or isoquinolinyl, which is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxy,
15 nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

said tertiary amine is NR₄R₅R₆, wherein R₄, R₅, and R₆ are independently selected from the group consisting of
20 C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈
25 cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl,
30 cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₁, S, SO, or SO₂;

Ar is selected from the group consisting of pyrrolidinyl, pyridyl, pyrimidyl, pyrazyl, pyridazyl, quinolinyl, and isoquinolinyl; and

R_1 and R_3 are independently hydrogen, C_1 - C_4 straight or branched chain alkyl, C_3 - C_4 straight or branched chain alkenyl or alkynyl, or Y-Z.

- 5 18. A method as claimed in Claim 1 in which the sensorineurotrophic compound is a compound of formula XV:



(XV)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

A and B, together with the nitrogen and carbon atoms to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing, in addition to the nitrogen atom, one or more additional heteroatom(s) independently selected from the group consisting of O, S, SO, SO₂, N, NH, and NR₃;

X is either O or S;

Y is a direct bond, C_1 - C_6 straight or branched chain alkyl, or C_2 - C_6 straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo- C_1 - C_6 -alkyl, thiocarbonyl, C_1 - C_6 -ester, thio- C_1 - C_6 -ester, C_1 - C_6 -alkoxy, C_2 - C_6 -alkenoxy, cyano, nitro, imino, C_1 - C_6 -alkylamino, amino- C_1 - C_6 -alkyl, sulfhydryl, thio- C_1 - C_6 -alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

R₃ is selected from the group consisting of hydrogen, C₁-C₆ straight or branched chain alkyl, C₃-C₆ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the
5 nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring
10 is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆-alkylamino, amido, amino, amino-C₁-C₆-alkyl, azo, benzyloxy, C₁-C₉ straight or branched chain alkyl, C₁-C₉ alkoxy, C₂-C₉ alkenyloxy, C₂-C₉ straight or
15 branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, carbonyl, carboxy, cyano, diazo, C₁-C₆-ester, formamido, halo, halo-C₁-C₆-alkyl, hydroxy, imino, isocyano, isonitrilo, nitrilo, nitro, nitroso, phenoxy, sulfhydryl, sulfonylsulfoxy, thio, thio-C₁-C₆-
20 alkyl, thiocarbonyl, thiocyano, thio-C₁-C₆-ester, thioformamido, trifluoromethyl, and carboxylic and heterocyclic moieties; wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group
25 consisting of O, N, and S; and wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl,
30 wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl,

sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

5 C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈
10 cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy,
15 C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein
20 any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

W is O or S; and

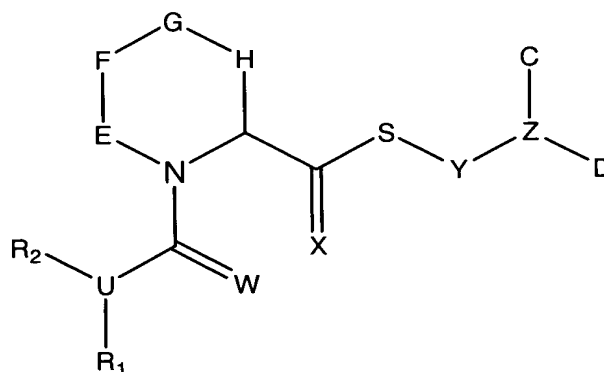
U is either O or N, provided that:

25 when U is O, then R₁ is a lone pair of electrons and R₂ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more
30 substituent(s) independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; and
 when U is N, then R₁ and R₂ are, independently, selected from the group consisting of hydrogen, Ar, C₃-C₁₀ cycloalkyl, C₇-C₁₂ bi- or tri-cyclic carbocycle, C₁-C₆

straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is substituted with one or more substituent(s) independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; or R₁ and R₂ are taken together to form a heterocyclic 5 or 6 membered ring selected from the group consisting of pyrrolidine, imidazolidine, pyrazolidine, piperidine, and piperazine.

19. A method as claimed in Claim 18 in which Ar is selected from the group consisting of phenyl, benzyl, naphthyl, indolyl, pyridyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl, purinyl, quinolinyl, isoquinolinyl, furyl, fluorenyl, thiophenyl, imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.

20. A method as claimed in Claim 18 in which the sensorineurotrophic compound is a compound of formula XVI:



(XVI)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

E, F, G and J are independently CH₂, O, S, SO, SO₂, NH, or NR₃;
X is either O or S;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with
5 amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or
10 alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

R₃ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄
15 bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or
20 tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆-alkylamino, amido, amino, amino-C₁-C₆-alkyl, azo, benzyloxy, C₁-C₉ straight or branched chain
25 alkyl, C₁-C₉ alkoxy, C₂-C₉ alkenyloxy, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, carbonyl, carboxy, cyano, diazo, C₁-C₆-ester, formamido, halo, halo-C₁-C₆-alkyl, hydroxy, imino, isocyano, isonitrilo, nitrilo, nitro, nitroso,
30 phenoxy, sulfhydryl, sulfonylsulfoxy, thio, thio-C₁-C₆-alkyl, thiocarbonyl, thiocyano, thio-C₁-C₆-ester, thioformamido, trifluoromethyl, and carboxylic and heterocyclic moieties, including alicyclic and aromatic structures; wherein the individual ring size is 5-8

members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and wherein any aromatic or tertiary alkyl amine is optionally oxidized to a
5 corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with
10 amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or
15 alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is
20 optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl,
25 thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or sulfonyl; wherein any carbon atom of said alkyl or
30 alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

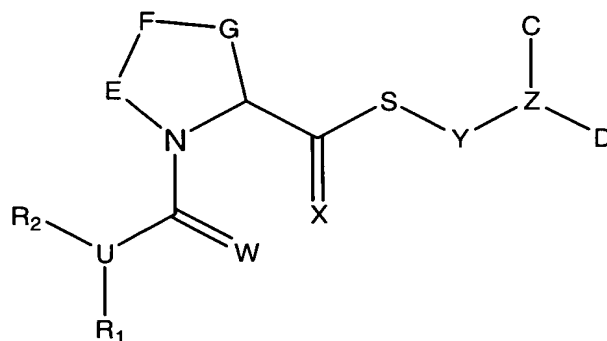
W is O or S; and

U is either O or N, provided that:

when U is O, then R₁ is a lone pair of electrons
and R₂ is selected from the group consisting of Ar,
C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain
5 alkyl, and C₂-C₆ straight or branched chain
alkenyl, wherein said alkyl or alkenyl is
optionally substituted with one or more
substituent(s) independently selected from the
group consisting of Ar and C₃-C₈ cycloalkyl; and
10 when U is N, then R₁ and R₂ are, independently,
selected from the group consisting of hydrogen,
Ar, C₃-C₁₀ cycloalkyl, C₇-C₁₂ bi- or tri-cyclic
carbocycle, C₁-C₆ straight or branched chain alkyl,
and C₂-C₆ straight or branched chain alkenyl,
15 wherein said alkyl or alkenyl is optionally
substituted with one or more substituent(s)
independently selected from the group consisting
of Ar and C₃-C₈ cycloalkyl; or R₁ and R₂ are taken
together to form a heterocyclic 5 or 6 membered
20 ring selected from the group consisting of
pyrrolidine, imidazolidine, pyrazolidine,
piperidine, and piperazine.

21. A method as claimed in Claim 20 in which Ar is
25 selected from the group consisting of phenyl, benzyl,
naphthyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl,
purinyl, quinolinyl, isoquinolinyl, furyl, thiophenyl,
imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.

22. A method as claimed in Claim 18 in which the sensorineurotrophic compound is a compound of formula XVII:



(XVII)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

E, F, and G are independently CH₂, O, S, SO, SO₂, NH, and NR₃;

X is either O or S;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

R₃ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain

containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆-alkylamino, amido, amino, amino-C₁-C₆-alkyl, azo, benzyloxy, C₁-C₉ straight or branched chain alkyl, C₁-C₉ alkoxy, C₂-C₉ alkenyloxy, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, carbonyl, carboxy, cyano, diazo, C₁-C₆-ester, formamido, halo, halo-C₁-C₆-alkyl, hydroxy, imino, isocyano, isonitrilo, nitrilo, nitro, nitroso, phenoxy, sulfhydryl, sulfonylsulfoxy, thio, thio-C₁-C₆-alkyl, thiocarbonyl, thiocyano, thio-C₁-C₆-ester, thioformamido, trifluoromethyl, and carboxylic and heterocyclic moieties, including alicyclic and aromatic structures; wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

W is O or S; and

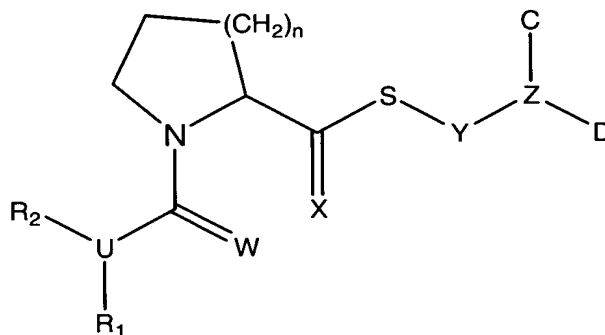
U is either O or N, provided that:

when U is O, then R₁ is a lone pair of electrons and R₂ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; and when U is N, then R₁ and R₂ are, independently, selected from the group consisting of hydrogen, Ar, C₃-C₈ cycloalkyl, C₇-C₁₂ bi- or tri-cyclic carbocycle, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s)

independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; or R₁ and R₂ are taken together to form a heterocyclic 5 or 6 membered ring selected from the group consisting of
5 pyrrolidine, imidazolidine, pyrazolidine, piperidine, and piperazine.

23. A method as claimed in Claim 22 in which Ar is selected from the group consisting of phenyl, benzyl,
10 naphthyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl, purinyl, quinolinyl, isoquinolinyl, furyl, thiophenyl, imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.

24. A method as claimed in Claim 1 in which the
15 sensorineurotrophic compound is a compound of formula XVIII:



20 or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

n is 1, 2 or 3;

X is either O or S;

Y is a direct bond, C₁-C₆ straight or branched chain
25 alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester,

thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or
5 alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

R₃ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄
10 bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or
15 tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆-alkylamino, amido, amino, amino-C₁-C₆-alkyl, azo, benzyloxy, C₁-C₉ straight or branched chain
20 alkyl, C₁-C₉ alkoxy, C₂-C₉ alkenyloxy, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, carbonyl, carboxy, cyano, diazo, C₁-C₆-ester, formamido, halo, halo-C₁-C₆-alkyl, hydroxy, imino, isocyano, isonitrilo, nitrilo, nitro, nitroso,
25 phenoxy, sulfhydryl, sulfonylsulfoxy, thio, thio-C₁-C₆-alkyl, thiocarbonyl, thiocyano, thio-C₁-C₆-ester, thioformamido, trifluoromethyl, and carboxylic and heterocyclic moieties, including alicyclic and aromatic structures; wherein the individual ring size is 5-8
30 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with
5 amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or
10 alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is
15 optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆-alkyl,
20 C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or sulfonyl; wherein any carbon atom of said alkyl or alkenyl is
25 optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

W is O or S; and

30 U is either O or N, provided that:

when U is O, then R₁ is a lone pair of electrons and R₂ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain or

alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; and

5 when U is N, then R₁ and R₂ are, independently, selected from the group consisting of hydrogen, Ar, C₃-C₁₀ cycloalkyl, C₇-C₁₂ bi- or tri-cyclic carbocycle, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl,

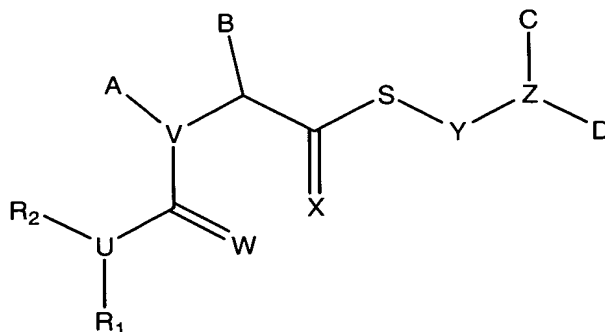
10 wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; or R₁ and R₂ are taken together to form a heterocyclic 5 or 6 membered

15 ring selected from the group consisting of pyrrolidine, imidazolidine, pyrazolidine, piperidine, and piperazine.

25. A method as claimed in Claim 24 in which Ar is

20 selected from the group consisting of phenyl, benzyl, naphthyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl, purinyl, quinolinyl, isoquinolinyl, furyl, thiophenyl, imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.

25 26. A method as claimed in Claim 1 in which the sensorineurotrophic compound is a compound of formula XIX:



(XIX)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

V is CH, N, or S;

5 Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, 10 thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulphydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or 15 SO₂;

R₃ is selected from the group consisting of hydrogen, C₁-C₆ straight or branched chain alkyl, C₃-C₆ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the 20 nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring 25 is either unsubstituted or substituted with one or more substituent(s); wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and wherein any aromatic or 30 tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is

optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, 5 sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

C and D are independently hydrogen, Ar, C₁-C₆ 10 straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, 15 and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, 20 amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally 25 replaced with O, NH, NR₃, S, SO, or SO₂; and

A and B, together with the nitrogen and carbon atoms to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing, in addition to the nitrogen atom, one or more 30 additional heteroatom(s) independently selected from the group consisting of O, S, SO, SO₂, N, NH, and NR₃;

X is either O or S;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group
5 consisting of C₁-C₆-alkylamino, amido, amino, amino-C₁-C₆-alkyl, azo, benzyloxy, C₁-C₉ straight or branched chain alkyl, C₁-C₉ alkoxy, C₂-C₉ alkenyloxy, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, carbonyl, carboxy, cyano, diazo, C₁-C₆-
10 ester, formanilido, halo, halo-C₁-C₆-alkyl, hydroxy, imino, isocyano, isonitrilo, nitrilo, nitro, nitroso, phenoxy, sulfhydryl, sulfonylsulfoxy, thio, thio-C₁-C₆-alkyl, thiocarbonyl, thiocyano, thio-C₁-C₆-ester, thioformamido, trifluoromethyl, and carboxylic and
15 heterocyclic moieties; wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and wherein any aromatic or tertiary alkyl amine is optionally oxidized to a
20 corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with
25 amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or
30 alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is

optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or

5 cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or

10 sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

15 W is O or S; and
U is either O or N, provided that:
when U is O, then R₁ is a lone pair of electrons and R₂ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain

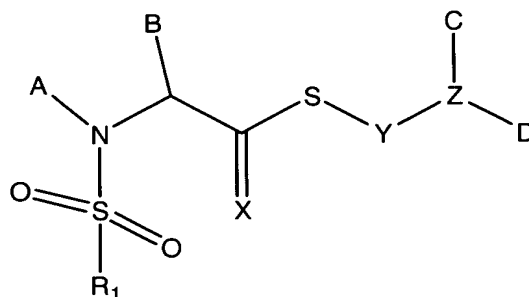
20 alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; and

25 when U is N, then R₁ and R₂ are, independently, selected from the group consisting of hydrogen, Ar, C₃-C₁₀ cycloalkyl, C₇-C₁₂ bi- or tri-cyclic carbocycle, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is

30 substituted with one or more substituent(s) independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; or R₁ and R₂ are taken together to form a heterocyclic 5 or 6 membered ring selected from the group

consisting of pyrrolidine, imidazolidine, pyrazolidine, piperidine, and piperazine.

27. A method as claimed in Claim 1 in which the
5 sensorineurotrophic compound is a compound of formula XX:



(XX)

a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

- 10 A and B, together with the nitrogen and carbon atoms to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing, in addition to the nitrogen atom, one or more heteroatom(s) independently selected from the group
15 consisting of O, S, SO, SO₂, N, NH, and NR₂;

X is either O or S;

- Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is
20 optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form
25 a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the
5 nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring
10 is either unsubstituted or substituted with one or more substituent(s); wherein the individual ring size is 5-8 members; wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; wherein any aromatic or
15 tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is
20 optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form
25 a carbonyl, or wherein any atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is
30 optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆-alkyl,

C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or
5 sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂; and
10 R₁ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group
15 consisting of Ar, C₃-C₈ cycloalkyl, amino, halo, halo-C₁-C₆-alkyl, hydroxy, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, carbonyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino,
20 C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, and sulfonyl, wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂.

25 28. A method as claimed in claim 27 in which Ar is selected from the group consisting of phenyl, benzyl, naphthyl, indolyl, pyridyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl, purinyl, quinolinyl, isoquinolinyl, furyl, fluorenyl, thiophenyl, imidazolyl,
30 oxazolyl, thiazolyl, pyrazolyl, and thienyl.

29. A method as claimed in Claim 28 in which A and B, together with the nitrogen and carbon atoms to which they are respectfully attached, form a 6 membered saturated or

unsaturated heterocyclic ring; and R₂ is C₄-C₇ branched chain alkyl, C₄-C₇ cycloalkyl, phenyl, or 3,4,5-trimethoxyphenyl.

- 5 30. A method as claimed in Claim 27 in which the sensorineurotrophic compound is selected from the group consisting of:

3-(*para*-Methoxyphenyl)-1-propylmercaptyl(2*S*)-N-(benzenesulfonyl)pyrrolidine-2-carboxylate;

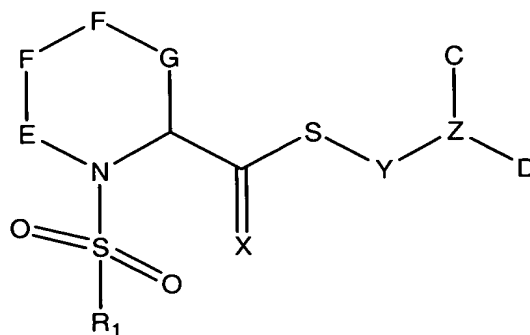
10 3-(*para*-Methoxyphenyl)-1-propylmercaptyl(2*S*)-N-(α -toluenesulfonyl)pyrrolidine-2-carboxylate;

3-(*para*-Methoxyphenyl)-1-propylmercaptyl(2*S*)-N-(α -toluenesulfonyl)pyrrolidine-2-carboxylate;

15 1,5-Diphenyl-3-pentylmercaptyl-N-(*para*-toluenesulfonyl)pipecolate; and

pharmaceutically acceptable salts and solvates thereof.

31. A method as claimed in Claim 27 in which the
20 sensorineurotrophic compound is a compound of formula XXI:



(XXI)

- or a pharmaceutically acceptable salt, ester, or solvate
25 thereof, wherein:

E, F, G and J are independently CH₂, O, S, SO, SO₂, NH or NR₂;

X is either O or S;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is
5 optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form
10 a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄
15 straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

20 Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester,
25 thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

30 Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s); wherein the individual ring size is 5-8 members; wherein the heterocyclic ring contains 1-6

heteroatom(s) independently selected from the group consisting of O, N, and S; wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

5 C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈
10 cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino,
15 amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein
20 any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂; and

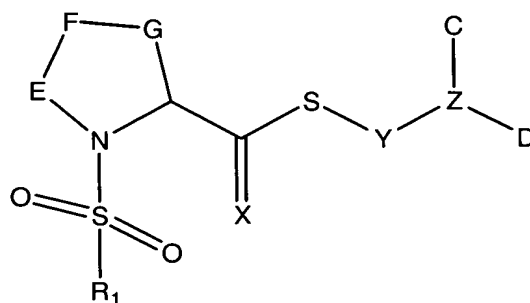
 R₁ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said
25 alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar, C₃-C₈ cycloalkyl, amino, halo, halo-C₁-C₆-alkyl, hydroxy, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain
30 alkenyl, carbonyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, and sulfonyl, wherein any carbon atom of said

alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂.

32. A method as claimed in Claim 31 in which Ar is
 5 selected from the group consisting of phenyl, benzyl, naphthyl, indolyl, pyridyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl, purinyl, quinolinyl, isoquinolinyl, furyl, fluorenyl, thiophenyl, imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.

10

33. A method as claimed in Claim 27 in which the sensorineurotrophic agent is a compound of formula XXII:



(XXII)

15 or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

E, F, and G are independently CH₂, O, S, SO, SO₂, NH or NR₂;

X is either O or S;

20 Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-(C₁-C₆)-alkyl, thiocarbonyl, (C₁-C₆)-
 25 ester, thio-(C₁-C₆)-ester, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenoxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom

of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s); wherein the individual ring size is 5-8 members; wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-(C₁-C₆)-alkyl, thiocarbonyl, (C₁-C₆)-ester, thio-(C₁-C₆)-ester, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenoxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

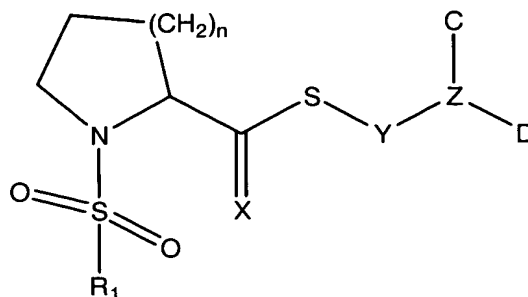
C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈

cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, or hydroxy; wherein any carbon atom of
5 said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂; and

R₁ is selected from the group consisting of Ar, C₃-C₈
10 cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar, C₃-C₈ cycloalkyl, amino, halo, halo-(C₁-
15 C₆)-alkyl, hydroxy, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, carbonyl, thiocarbonyl, (C₁-C₆)-ester, thio-(C₁-C₆)-ester, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenoxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl,
20 sulfhydryl, thio-(C₁-C₆)-alkyl, and sulfonyl, wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂.

34. A method as claimed in Claim 33 in which Ar is
25 selected from the group consisting of phenyl, benzyl, naphthyl, indolyl, pyridyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl, purinyl, quinolinyl, isoquinolinyl, furyl, fluorenyl, thiophenyl, imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.
30

35. A method as claimed in Claim 27 in which the sensorineurotrophic compound is a compound of formula XXIII:



(XXIII)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

5 n is 1, 2 or 3;

 X is either O or S;

 Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is
 10 optionally substituted in one or more position(s) with amino, halo, halo-(C₁-C₆)-alkyl, thiocarbonyl, (C₁-C₆)-ester, thio-(C₁-C₆)-ester, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenoxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)-alkyl, sulfonyl,
 15 or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

 Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is
 20 optionally substituted in one or more position(s) with amino, halo, halo-(C₁-C₆)-alkyl, thiocarbonyl, (C₁-C₆)-ester, thio-(C₁-C₆)-ester, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenoxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)-alkyl, sulfonyl,
 25 or oxygen to form a carbonyl, or wherein any atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the
5 nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring
10 is either unsubstituted or substituted with one or more substituent(s); wherein the individual ring size is 5-8 members; wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; wherein any aromatic or
15 tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is
20 optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₄ alkyl,
25 C₂-C₄ alkenyl, or hydroxy; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂; and

30 R₁ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group

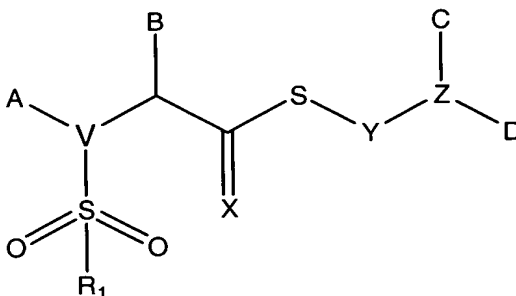
consisting of Ar, C₃-C₈ cycloalkyl, amino, halo, halo-(C₁-C₆)-alkyl, hydroxy, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, carbonyl, thiocarbonyl, (C₁-C₆)-ester, thio-(C₁-C₆)-ester, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenoxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)-alkyl, and sulfonyl, wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂.

10

36. A method as claimed in Claim 35 in which Ar is selected from the group consisting of phenyl, benzyl, naphthyl, indolyl, pyridyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl, purinyl, quinolinyl, isoquinolinyl, furyl, fluorenyl, thiophenyl, imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.

37. A method as claimed in Claim 1 in which the sensorineurotrophic compound is a compound of formula XXIV:

20



(XXIV)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

25

V is CH, N, or S;

A and B, together with the nitrogen and carbon atoms to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring

containing, in addition to the nitrogen atom, one or more heteroatom(s) independently selected from the group consisting of O, S, SO, SO₂, N, NH, and NR₂;

X is either O or S;

5 Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, 10 thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or 15 SO₂;

R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the 20 nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring 25 is either unsubstituted or substituted with one or more substituent(s); wherein the individual ring size is 5-8 members; wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; wherein any aromatic or 30 tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is

optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, 5 sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

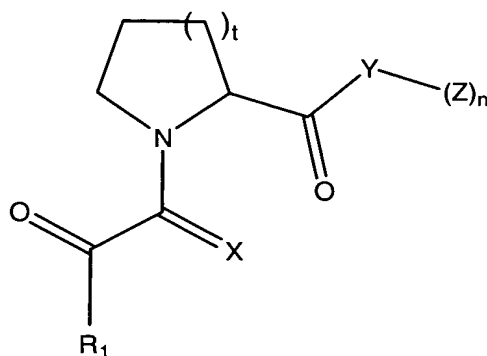
C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or 10 branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or 15 cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or 20 sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂; and

25 R₁ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group 30 consisting of Ar, C₃-C₈ cycloalkyl, amino, halo, halo-C₁-C₆-alkyl, hydroxy, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, carbonyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino,

C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, and sulfonyl, wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂..

5

38. A method as claimed in Claim 1 in which the sensorineurotrophic compound is a compound of formula XXV:



(XXV)

10

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

R₁ is C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl or Ar₁, wherein said R₁ is unsubstituted or substituted with one or more substituents independently selected from the group consisting of C₁-C₆ alkyl, C₂-C₆ alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, and Ar₂;

15

Ar₁ and Ar₂ are independently selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, wherein said Ar₁ is unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl,

20

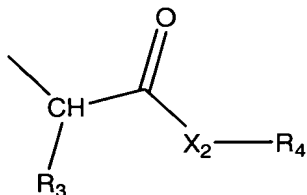
25

C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

X is O, S, CH₂ or H₂;

Y is O or NR₂, wherein R₂ is a direct bond to a Z,
5 hydrogen or C₁-C₆ alkyl; and

each Z, independently, is C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said Z is substituted with one or more
substituent(s) independently selected from the group
10 consisting of Ar₁, C₃-C₈ cycloalkyl, and C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with C₃-C₈ cycloalkyl; or Z is the fragment



15 wherein:

R₃ is C₁-C₉ straight or branched chain alkyl which is unsubstituted or substituted with C₃-C₈ cycloalkyl or Ar₁;

X₂ is O or NR₅, wherein R₅ is selected from the group consisting of hydrogen, C₁-C₆ straight or branched chain
20 alkyl, and C₂-C₆ straight or branched chain alkenyl;

R₄ is selected from the group consisting of phenyl, benzyl, C₁-C₅ straight or branched chain alkyl, C₂-C₅ straight or branched chain alkenyl, C₁-C₅ straight or branched chain alkyl substituted with phenyl, and C₂-C₅
25 straight or branched chain alkenyl substituted with phenyl;

n is 1 or 2, and;

t is 1, 2 or 3.

39. A method as claimed in Claim 38 in which the compound is selected from the group consisting of:

3-phenyl-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;

5 3-phenyl-1-prop-2-(*E*)-enyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;

3-(3,4,5-trimethoxyphenyl)-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidine-carboxylate;

10 3-(3,4,5-trimethoxyphenyl)-1-prop-2-(*E*)-enyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;

3-(4,5-dichlorophenyl)-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;

3-(4,5-dichlorophenyl)-1-prop-2-(*E*)-enyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidine-carboxylate;

15 3-(4,5-methylenedioxyphenyl)-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidine-carboxylate;

3-(4,5-methylenedioxyphenyl)-1-prop-2-(*E*)-enyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;

20 3-cyclohexyl-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;

3-cyclohexyl-1-prop-2-(*E*)-enyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;

25 (1*R*)-1,3-diphenyl-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;

(1*R*)-1,3-diphenyl-1-prop-2-(*E*)-enyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidine-carboxylate;

(1*R*)-1-cyclohexyl-3-phenyl-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidine-carboxylate;

30 (1*R*)-1-cyclohexyl-3-phenyl-1-prop-2-(*E*)-enyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;

(1R)-1-(4,5-dichlorophenyl)-3-phenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidine-carboxylate;

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-cyclohexyl)ethyl-2-pyrrolidinecarboxylate;

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-4-cyclohexyl)butyl-2-pyrrolidinecarboxylate;

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-furanyl])ethyl-2-pyrrolidinecarboxylate;

10 3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thienyl])ethyl-2-pyrrolidinecarboxylate;

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thiazolyl])ethyl-2-pyrrolidinecarboxylate;

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-phenyl)ethyl-2-pyrrolidinecarboxylate;

1,7-diphenyl-4-heptyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;

3-phenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxo-4-hydroxybutyl)-2-pyrrolidinecarboxylate;

20 3-phenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxamide;

1-[1-(3,3-dimethyl-1,2-dioxopentyl)-L-proline]-L-phenylalanine ethyl ester;

1-[1-(3,3-dimethyl-1,2-dioxopentyl)-L-proline]-L-leucine ethyl ester;

1-[1-(3,3-dimethyl-1,2-dioxopentyl)-L-proline]-L-phenylglycine ethyl ester;

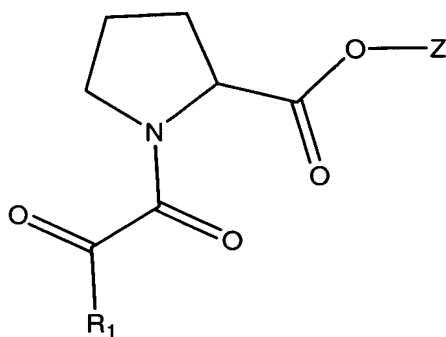
1-[1-(3,3-dimethyl-1,2-dioxopentyl)-L-proline]-L-phenylalanine phenyl ester;

30 1-[1-(3,3-dimethyl-1,2-dioxopentyl)-L-proline]-L-phenylalanine benzyl ester;

1-[1-(3,3-dimethyl-1,2-dioxopentyl)-L-proline]-L-isoleucine ethyl ester; and

pharmaceutically acceptable salts, esters, and solvates thereof.

40. A method as claimed in Claim 38 in which the
5 sensorineurotrophic compound is a compound of formula XXVI:



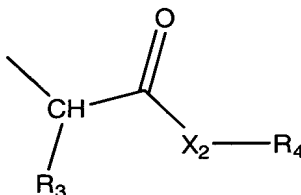
(XXVI)

10 or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

R₁ is C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl or Ar₁, wherein said R₁ is unsubstituted or substituted with one or more substituents
15 independently selected from the group consisting of C₁-C₆ alkyl, C₂-C₆ alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, and Ar₂;

Ar₁ and Ar₂ are independently selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, wherein said Ar₁ is unsubstituted or substituted with one or more
20 substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

Z is C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said Z is substituted with one or more substituent(s) independently selected from the group consisting of Ar₁, C₃-C₈ cycloalkyl, and C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with C₃-C₈ cycloalkyl; or Z is the fragment



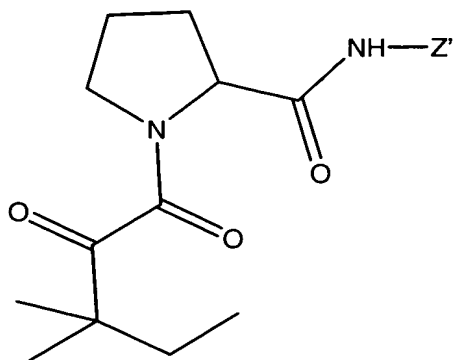
wherein:

10 R₃ is C₁-C₉ straight or branched chain alkyl which is unsubstituted or substituted with C₃-C₈ cycloalkyl or Ar₁;

 X₂ is O or NR₅, wherein R₅ is selected from the group consisting of hydrogen, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain
15 alkenyl; and

 R₄ is selected from the group consisting of phenyl, benzyl, C₁-C₅ straight or branched chain alkyl, C₂-C₅ straight or branched chain alkenyl, C₁-C₅ straight or branched chain alkyl substituted with phenyl, and C₂-C₅
20 straight or branched chain alkenyl substituted with phenyl.

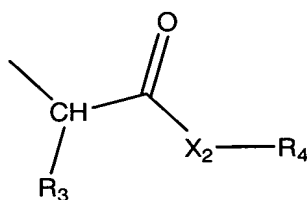
41. A method as claimed in Claim 1 in which the sensorineurotrophic agent may be a compound of formula
25 XXVII:



(XXVII)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

5 Z' is the fragment



wherein:

10 R₃ is C₁-C₉ straight or branched chain alkyl or unsubstituted Ar₁, wherein said alkyl is unsubstituted or substituted with C₃-C₈ cycloalkyl or Ar₁;

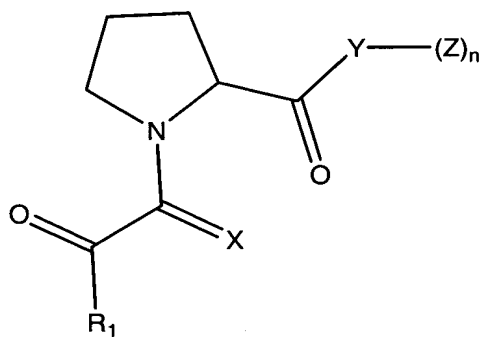
X₂ is O or NR₅, wherein R₅ is selected from the group consisting of hydrogen, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl;

15 R₄ is selected from the group consisting of phenyl, benzyl, C₁-C₅ straight or branched chain alkyl, C₂-C₅ straight or branched chain alkenyl, C₁-C₅ straight or branched chain alkyl substituted with phenyl, and C₂-C₅ straight or branched chain alkenyl substituted with phenyl; and

20 Ar₁ is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, wherein said Ar₁ is unsubstituted or substituted with one or more substituent(s) independently

selected from the group consisting of hydrogen, halo,
hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or
branched chain alkyl, C₂-C₆ straight or branched chain
alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy,
5 benzyloxy, and amino.

42. A method as claimed in Claim 38 in which the
sensorineurotrophic agent may also be a compound of
formula XXVIII:



(XXVIII)

wherein:

R₁ is C₁-C₆ straight or branched chain alkyl, C₂-C₆
straight or branched chain alkenyl, C₃-C₆ cycloalkyl or
15 Ar₁, wherein said alkyl or alkenyl is unsubstituted or
substituted with C₃-C₆ cycloalkyl or Ar₂;

Ar₁ and Ar₂ are independently selected from the
group consisting of 2-furyl, 2-thienyl, and phenyl;

X is selected from the group consisting of oxygen
20 and sulfur;

Y is oxygen or NR₂, wherein R₂ is a direct bond to a
Z, hydrogen or C₁-C₆ alkyl;

each Z, independently, is hydrogen, C₁-C₆ straight
or branched chain alkyl, or C₂-C₆ straight or branched
25 chain alkenyl, wherein said Z is substituted with one or
more substituent(s) independently selected from the group
consisting of 2-furyl, 2-thienyl, C₃-C₆ cycloalkyl,
pyridyl, and phenyl, each having one or more

substituent(s) independently selected from the group consisting of hydrogen and C₁-C₄ alkoxy; and n is 1 or 2.

- 5 43. A method as claimed in Claim 42 in which the compound is selected from the group consisting of:
- 3-(2,5-dimethoxyphenyl)-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 3-(2,5-dimethoxyphenyl)-1-prop-2-(*E*)-enyl (2*S*)-1-
10 (3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidine-carboxylate;
- 2-(3,4,5-trimethoxyphenyl)-1-ethyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 3-(3-pyridyl)-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 15 3-(2-pyridyl)-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 3-(4-pyridyl)-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 3-phenyl-1-propyl (2*S*)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate;
- 20 3-phenyl-1-propyl (2*S*)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate;
- 3-(3-pyridyl)-1-propyl (2*S*)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidine-carboxylate;
- 25 3-(3-pyridyl)-1-propyl (2*S*)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate;
- 3,3-diphenyl-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 3-(3-pyridyl)-1-propyl (2*S*)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate;
- 30 3-(3-pyridyl)-1-propyl (2*S*)-N-([2-thienyl]glyoxyl)pyrrolidinecarboxylate;
- 3,3-diphenyl-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxobutyl)-2-pyrrolidinecarboxylate;

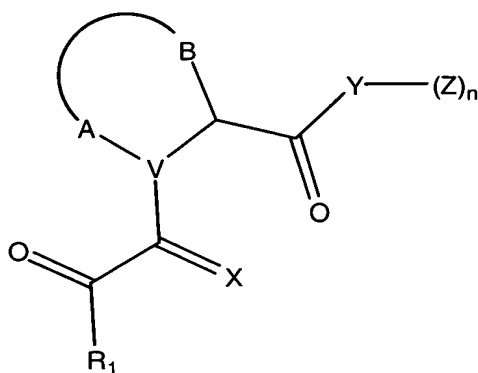
3,3-diphenyl-1-propyl (2*S*)-1-cyclohexylglyoxyl-
2-pyrrolidinecarboxylate;

3,3-diphenyl-1-propyl (2*S*)-1-(2-thienyl)glyoxyl-2-
pyrrolidinecarboxylate; and

5 pharmaceutically acceptable salts, esters, and
solvates thereof.

44. A method as claimed in Claim 1 in which the
sensorineurotrophic compound is a compound of formula

10 XXIX:



(XXIX)

or a pharmaceutically acceptable salt, ester, or solvate
thereof, wherein:

15 V is CH, N, or S;

A and B, together with V and the carbon atom to
which they are respectively attached, form a 5-7 membered
saturated or unsaturated heterocyclic ring containing, in
addition to V, one or more heteroatom(s) independently
20 selected from the group consisting of O, S, SO, SO₂, N,
NH, and NR;

R is either C₁-C₉ straight or branched chain alkyl,
C₂-C₉ straight or branched chain alkenyl, C₃-C₉
cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, wherein R is
25 either unsubstituted or substituted with one or more
substituent(s) independently selected from the group
consisting of halo, halo-(C₁-C₆)-alkyl, carbonyl,

carboxy, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, thio-(C₁-C₆)-alkyl, alkylthio, sulfhydryl, amino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, aminocarboxyl, and Ar₂;

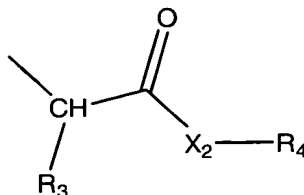
R₁ is C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl or Ar₁, wherein said R₁ is unsubstituted or substituted with one or more substituents independently selected from the group consisting of C₁-C₆ alkyl, C₂-C₆ alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, and Ar₂;

Ar₁ and Ar₂ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s); wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S;

X is O, S, CH₂ or H₂;

Y is O or NR₂, wherein R₂ is a direct bond to a Z, hydrogen or C₁-C₆ alkyl; and

each Z, independently, is C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said Z is substituted with one or more substituent(s) independently selected from the group consisting of Ar₁, C₃-C₈ cycloalkyl, and C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with C₃-C₈ cycloalkyl; or Z is the fragment



wherein:

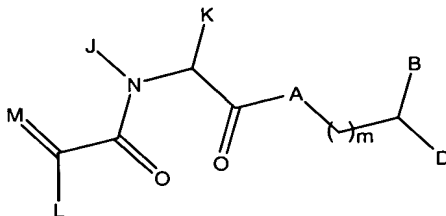
R₃ is C₁-C₉ straight or branched chain alkyl which is unsubstituted or substituted with C₃-C₈ cycloalkyl or Ar₁;

5 X₂ is O or NR₅, wherein R₅ is selected from the group consisting of hydrogen, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl; and

R₄ is selected from the group consisting of phenyl,
10 benzyl, C₁-C₅ straight or branched chain alkyl, C₂-C₅ straight or branched chain alkenyl, C₁-C₅ straight or branched chain alkyl substituted with phenyl, and C₂-C₅ straight or branched chain alkenyl substituted with phenyl; and,
15 n is 1 or 2.

45. A method as claimed in Claim 1 in which the sensorineurotrophic compound is a compound of formula (LV):

20



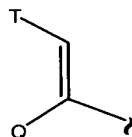
(LV)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

25 m is 0-3;

A is CH₂, O, NH, or N-(C₁-C₄ alkyl);

B and D are independently hydrogen, Ar, C₅-C₇ cycloalkyl substituted C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, C₅-C₇ cycloalkenyl substituted C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, or Ar substituted C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, wherein in each case, one or two carbon atom(s) of said alkyl or alkenyl may be substituted with one or two heteroatom(s) independently selected from the group consisting of oxygen, sulfur, SO, and SO₂ in chemically reasonable substitution patterns, or



15

wherein Q is hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; and

20 T is Ar or C₅-C₇ cycloalkyl substituted at positions 3 and 4 with substituents independently selected from the group consisting of hydrogen, hydroxy, O-(C₁-C₄ alkyl), O-(C₂-C₄ alkenyl), and carbonyl;

25 Ar is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, monocyclic and bicyclic heterocyclic ring systems with individual ring sizes being 5 or 6 which contain in

30 either or both rings a total of 1-4 heteroatom(s) independently selected from the group consisting of oxygen, nitrogen and sulfur; wherein Ar contains 1-3

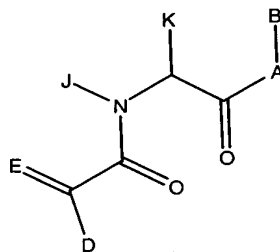
5 (C₁-C₄ straight or branched chain alkyl), 0-(C₂-C₄

10 M is oxygen then L is U;

15 cycloalkenyl substituted with C₁-C₄ straight or branched
chain alkyl or C₂-C₄ straight or branched chain alkenyl,
(C₁-C₄ alkyl or C₂-C₄ alkenyl)-Ar, or Ar;

20 cyclohexylmethyl; or J and K are taken together to form a
5-7 membered heterocyclic ring which is substituted with
oxygen, sulfur, SO, or SO₂.

25 sensorineurotrophic compound is a compound of formula
(LVI):

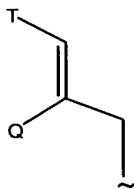


(LVI)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

A is O, NH, or N-(C₁-C₄ alkyl);

5 B is hydrogen, CHL-Ar, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl, Ar substituted C₁-C₆ alkyl or C₂-C₆ alkenyl, or



10

wherein L and Q are independently hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; and
15 T is Ar or C₅-C₇ cyclohexyl substituted at positions 3 and 4 with substituents independently selected from the group consisting of hydrogen, hydroxy, O-(C₁-C₄ alkyl), O-(C₂-C₄ alkenyl), and carbonyl;
20

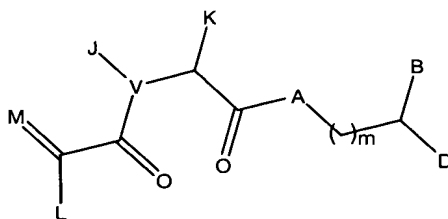
Ar is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl having 1-3 substituent(s) independently selected from the group
25 consisting of hydrogen, halo, hydroxy, nitro, CF₃, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, O-(C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄ straight or branched chain alkenyl), O-benzyl, O-phenyl, amino, and phenyl.

D is hydrogen or U; E is oxygen or CH-U, provided that if D is hydrogen, then E is CH-U, or if E is oxygen, then D is U;

U is hydrogen, O-(C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄ straight or branched chain alkenyl), C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₅-C₇-cycloalkyl, C₅-C₇ cycloalkenyl substituted with C₁-C₄ straight or branched chain alkyl or C₂-C₄ straight or branched chain alkenyl, 2-indolyl, 3-indolyl, (C₁-C₄ alkyl or C₂-C₄ alkenyl)-Ar, or Ar;

J is hydrogen, C₁ or C₂ alkyl, or benzyl; K is C₁-C₄ straight or branched chain alkyl, benzyl or cyclohexylethyl; or J and K are taken together to form a 5-7 membered heterocyclic ring which is substituted with oxygen, sulfur, SO, or SO₂.

47. A method as claimed in Claim 1 in which the sensorineurotrophic compound is a compound of formula LVIII:



(LVIII)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

V is CH, N, or S;

J and K, taken together with V and the carbon atom to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring

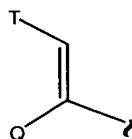
containing, in addition to V, one or more heteroatom(s) selected from the group consisting of O, S, SO, SO₂, N, NH, and NR;

R is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₉ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, wherein R is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, halo(C₁-C₆)-alkyl, carbonyl, carboxy, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, thio-(C₁-C₆)-alkyl, (C₁-C₆)-alkylthio, sulfhydryl, amino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, aminocarboxyl, and Ar₂;

Ar₁ and Ar₂ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring; wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S;

A is CH₂, O, NH, or N-(C₁-C₄ alkyl);

B and D are independently hydrogen, Ar, C₅-C₇ cycloalkyl substituted C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, C₅-C₇ cycloalkenyl substituted C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, or Ar substituted C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, wherein in each case, one or two carbon atom(s) of said alkyl or alkenyl may be substituted with one or two heteroatom(s) independently selected from the group consisting of oxygen, sulfur, SO, and SO₂ in chemically reasonable substitution patterns, or

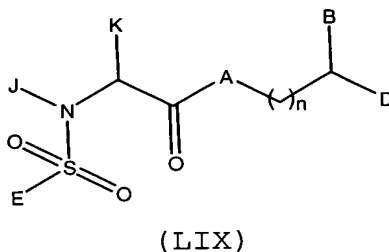


- 5 wherein Q is hydrogen, C₁-C₆ straight or
 branched chain alkyl, or C₂-C₆ straight or
 branched chain alkenyl; and
 T is Ar or C₅-C₇ cycloalkyl substituted at
 positions 3 and 4 with substituents
 10 independently selected from the group
 consisting of hydrogen, hydroxy, O-(C₁-C₄
 alkyl), O-(C₂-C₄ alkenyl), and carbonyl;
 Ar is selected from the group consisting of 1-
 naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 3-
 15 thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl,
 monocyclic and bicyclic heterocyclic ring systems with
 individual ring sizes being 5 or 6 which contain in
 either or both rings a total of 1-4 heteroatom(s)
 independently selected from the group consisting of
 20 oxygen, nitrogen and sulfur; wherein Ar contains 1-3
 substituent(s) independently selected from the group
 consisting of hydrogen, halo, hydroxy, hydroxymethyl,
 nitro, CF₃, trifluoromethoxy, C₁-C₆ straight or branched
 chain alkyl, C₂-C₆ straight or branched chain alkenyl, O-
 25 (C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄
 straight or branched chain alkenyl), O-benzyl, O-phenyl,
 amino, 1,2-methylenedioxy, carbonyl, and phenyl;
 L is either hydrogen or U; M is either oxygen or CH-
 U, provided that if L is hydrogen, then M is CH-U, or if
 30 M is oxygen then L is U;
 U is hydrogen, O-(C₁-C₄ straight or branched chain
 alkyl), O-(C₂-C₄ straight or branched chain alkenyl), C₁-

C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl substituted with C₁-C₄ straight or branched chain alkyl or C₂-C₄ straight or branched chain alkenyl, (C₁-C₄ alkyl or C₂-C₄ alkenyl)-Ar, or Ar;

J is hydrogen, C₁ or C₂ alkyl, or benzyl; K is C₁-C₄ straight or branched chain alkyl, benzyl or cyclohexylmethyl; or J and K are taken together to form a 5-7 membered heterocyclic ring which is substituted with oxygen, sulfur, SO, or SO₂.

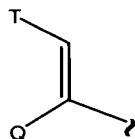
48. A method as claimed in Claim 1 in which the sensorineurotrophic compound is a compound of the formula (LIX):



or a pharmaceutically acceptable salt, ester or solvate thereof, wherein:

A is CH₂, O, NH, or N-(C₁-C₄ alkyl);

B and D are independently Ar, hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is unsubstituted or substituted with C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl or Ar, and wherein one or two carbon atom(s) of said alkyl or alkenyl may be substituted with one or two heteroatom(s) independently selected from the group consisting of O, S, SO, and SO₂ in chemically reasonable substitution patterns, or



wherein Q is hydrogen, C₁-C₆ straight or
 branched chain alkyl, or C₂-C₆ straight or
 5 branched chain alkenyl; and
 T is Ar or C₅-C₇ cycloalkyl substituted at
 positions 3 and 4 with one or more
 substituent(s) independently selected from the
 group consisting of hydrogen, hydroxy, O-(C₁-C₄
 10 alkyl), O-(C₂-C₄ alkenyl), and carbonyl;
 provided that both B and D are not hydrogen;

Ar is selected from the group consisting of phenyl,
 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 3-
 thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, monocyclic and
 15 bicyclic heterocyclic ring systems with individual ring
 sizes being 5 or 6 which contain in either or both rings
 a total of 1-4 heteroatoms independently selected from
 the group consisting of O, N, and S; wherein Ar contains
 1-3 substituent(s) independently selected from the group
 20 consisting of hydrogen, halo, hydroxy, nitro,
 trifluoromethyl, trifluoromethoxy, C₁-C₆ straight or
 branched chain alkyl, C₂-C₆ straight or branched chain
 alkenyl, O-(C₁-C₄ straight or branched chain alkyl), O-
 (C₂-C₄ straight or branched chain alkenyl), O-benzyl, O-
 25 phenyl, 1,2-methylenedioxy, amino, carboxyl, and phenyl;

E is C₁-C₆ straight or branched chain alkyl, C₂-C₆
 straight or branched chain alkenyl, C₅-C₇ cycloalkyl, C₅-
 C₇ cycloalkenyl substituted with C₁-C₄ straight or
 branched chain alkyl or C₂-C₄ straight or branched chain
 30 alkenyl, (C₂-C₄ alkyl or C₂-C₄ alkenyl)-Ar, or Ar;

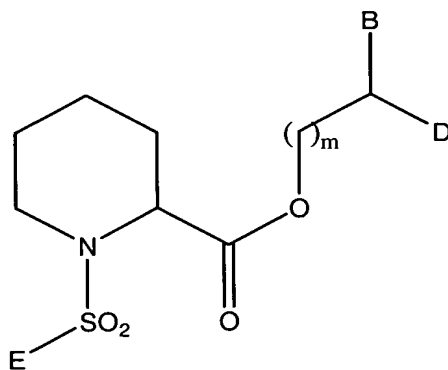
J is hydrogen, C₁ or C₂ alkyl, or benzyl; K is C₁-C₄
 straight or branched chain alkyl, benzyl, or

cyclohexylmethyl; or J and K are taken together to form a 5-7 membered heterocyclic ring which is substituted with O, S, SO, or SO₂;

n is 0 to 3.

5

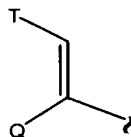
49. A method as claimed in Claim 1 in which the sensorineurotrophic compound is a compound of Formula LXI:



(LXI)

or a pharmaceutically acceptable salt, ester or solvate thereof, wherein:

B and D are independently Ar, hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is unsubstituted or substituted with C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl or Ar, and wherein one or two carbon atom(s) of said alkyl or alkenyl may be substituted with one or two heteroatom(s) independently selected from the group consisting of O, S, SO, and SO₂ in chemically reasonable substitution patterns, or



wherein Q is hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; and

5 T is Ar or C₅-C₇ cycloalkyl substituted at positions 3 and 4 with one or more substituent(s) independently selected from the group consisting of hydrogen, hydroxy, O-(C₁-C₄ alkyl), O-(C₂-C₄ alkenyl), and carbonyl;

provided that both B and D are not hydrogen;

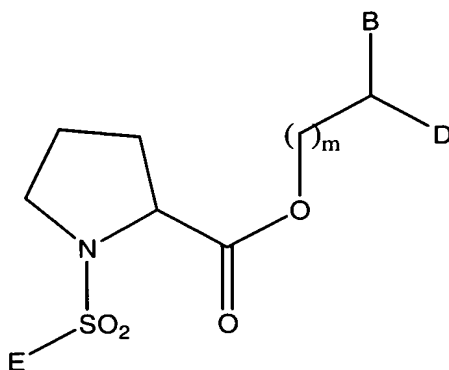
10 Ar is selected from the group consisting of phenyl, 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, monocyclic and bicyclic heterocyclic ring systems with individual ring sizes being 5 or 6 which contain in either or both rings
15 a total of 1-4 heteroatoms independently selected from the group consisting of O, N, and S; wherein Ar contains 1-3 substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, trifluoromethoxy, C₁-C₆ straight or
20 branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, O-(C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄ straight or branched chain alkenyl), O-benzyl, O-phenyl, 1,2-methylenedioxy, amino, carboxyl, and phenyl;

E is C₁-C₆ straight or branched chain alkyl, C₂-C₆
25 straight or branched chain alkenyl, C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl substituted with C₁-C₄ straight or branched chain alkyl or C₂-C₄ straight or branched chain alkenyl, (C₂-C₄ alkyl or C₂-C₄ alkenyl)-Ar, or Ar; and

m is 0 to 3.

30

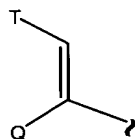
50. A method as claimed in Claim 1 in which the sensorineurotrophic compound is a compound of Formula (LXII):



(LXII)

or a pharmaceutically acceptable salt thereof, wherein:

B and D are independently Ar, hydrogen, C₁-C₆
 5 straight or branched chain alkyl, or C₂-C₆ straight or
 branched chain alkenyl, wherein said alkyl or alkenyl is
 unsubstituted or substituted with C₅-C₇ cycloalkyl, C₅-C₇
 cycloalkenyl, or Ar, and wherein one or two carbon
 atom(s) of said alkyl or alkenyl may be substituted with
 10 one or two heteroatom(s) independently selected from the
 group consisting of O, S, SO, and SO₂ in chemically
 reasonable substitution patterns, or



15

wherein Q is hydrogen, C₁-C₆ straight or
 branched chain alkyl, or C₂-C₆ straight or
 branched chain alkenyl; and

T is Ar or C₅-C₇ cycloalkyl substituted at
 20 positions 3 and 4 with one or more
 substituent(s) independently selected from the
 group consisting of hydrogen, hydroxy, O-(C₁-C₄
 alkyl), O-(C₂-C₄ alkenyl), and carbonyl;

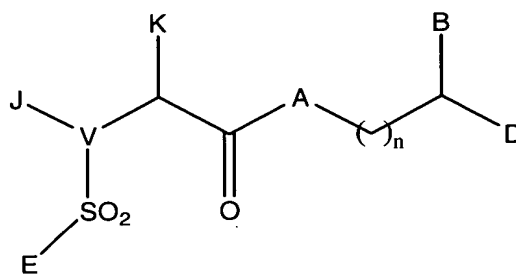
provided that both B and D are not hydrogen;

Ar is selected from the group consisting of phenyl, 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, monocyclic and bicyclic heterocyclic ring systems with individual ring sizes being 5 or 6 which contain in either or both rings a total of 1-4 heteroatoms independently selected from the group consisting of O, N, and S; wherein Ar contains 1-3 substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, trifluoromethoxy, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, O-(C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄ straight or branched chain alkenyl), O-benzyl, O-phenyl, 1,2-methylenedioxy, amino, carboxyl, and phenyl;

E is C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl substituted with C₁-C₄ straight or branched chain alkyl or C₂-C₄ straight or branched chain alkenyl, (C₂-C₄ alkyl or C₂-C₄ alkenyl)-Ar, or Ar; and

m is 0 to 3.

51. A method as claimed in Claim 1 in which the sensorineurotrophic compound is a compound of Formula LXIII:



(LXIII)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

V is CH, N, or S;

J and K, taken together with V and the carbon atom to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing, in addition to V, one or more heteroatom(s) selected from the group consisting of O, S, SO, SO₂, N, NH, and NR;

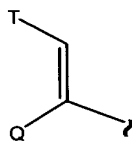
R is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₉ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, wherein R is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, halo(C₁-C₆)-alkyl, carbonyl, carboxy, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, thio-(C₁-C₆)-alkyl, (C₁-C₆)-alkylthio, sulfhydryl, amino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, aminocarboxyl, and Ar₂;

Ar₁ and Ar₂ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring; wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S;

A is CH₂, O, NH, or N-(C₁-C₄ alkyl);

B and D are independently Ar, hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is unsubstituted or substituted with C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl or Ar, and wherein one or two carbon atom(s) of said alkyl or alkenyl may be substituted with one or two heteroatom(s) independently selected from the group

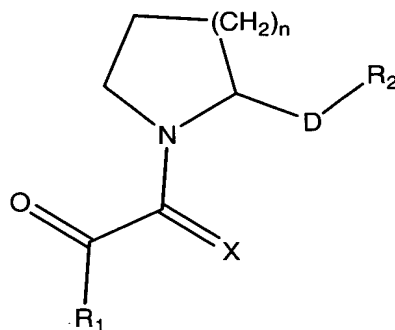
consisting of O, S, SO, and SO₂ in chemically reasonable substitution patterns, or



- 5 wherein Q is hydrogen, C₁-C₆ straight or
 branched chain alkyl, or C₂-C₆ straight or
 branched chain alkenyl; and
 T is Ar or C₅-C₇ cycloalkyl substituted at
 positions 3 and 4 with one or more
10 substituent(s) independently selected from the
 group consisting of hydrogen, hydroxy, O-(C₁-C₄
 alkyl), O-(C₂-C₄ alkenyl), and carbonyl;
provided that both B and D are not hydrogen;
 Ar is selected from the group consisting of phenyl,
15 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 3-
 thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, monocyclic and
 bicyclic heterocyclic ring systems with individual ring
 sizes being 5 or 6 which contain in either or both rings
 a total of 1-4 heteroatoms independently selected from
20 the group consisting of O, N, and S; wherein Ar contains
 1-3 substituent(s) independently selected from the group
 consisting of hydrogen, halo, hydroxy, nitro,
 trifluoromethyl, trifluoromethoxy, C₁-C₆ straight or
 branched chain alkyl, C₂-C₆ straight or branched chain
25 alkenyl, O-(C₁-C₄ straight or branched chain alkyl), O-
 (C₂-C₄ straight or branched chain alkenyl), O-benzyl, O-
 phenyl, 1,2-methylenedioxy, amino, carboxyl, and phenyl;
 E is C₁-C₆ straight or branched chain alkyl, C₂-C₆
 straight or branched chain alkenyl, C₅-C₇ cycloalkyl, C₅-
30 C₇ cycloalkenyl substituted with C₁-C₄ straight or
 branched chain alkyl or C₂-C₄ straight or branched chain
 alkenyl, (C₂-C₄ alkyl or C₂-C₄ alkenyl)-Ar, or Ar;

J is hydrogen, C₁ or C₂ alkyl, or benzyl; K is C₁-C₄ straight or branched chain alkyl, benzyl, or cyclohexylmethyl; or J and K are taken together to form a 5-7 membered heterocyclic ring which is substituted with
5 O, S, SO, or SO₂;
n is 0 to 3.

52. A method as claimed in Claim 1 in which the sensorineurotrophic compound is a compound of formula
10 (LXIV):



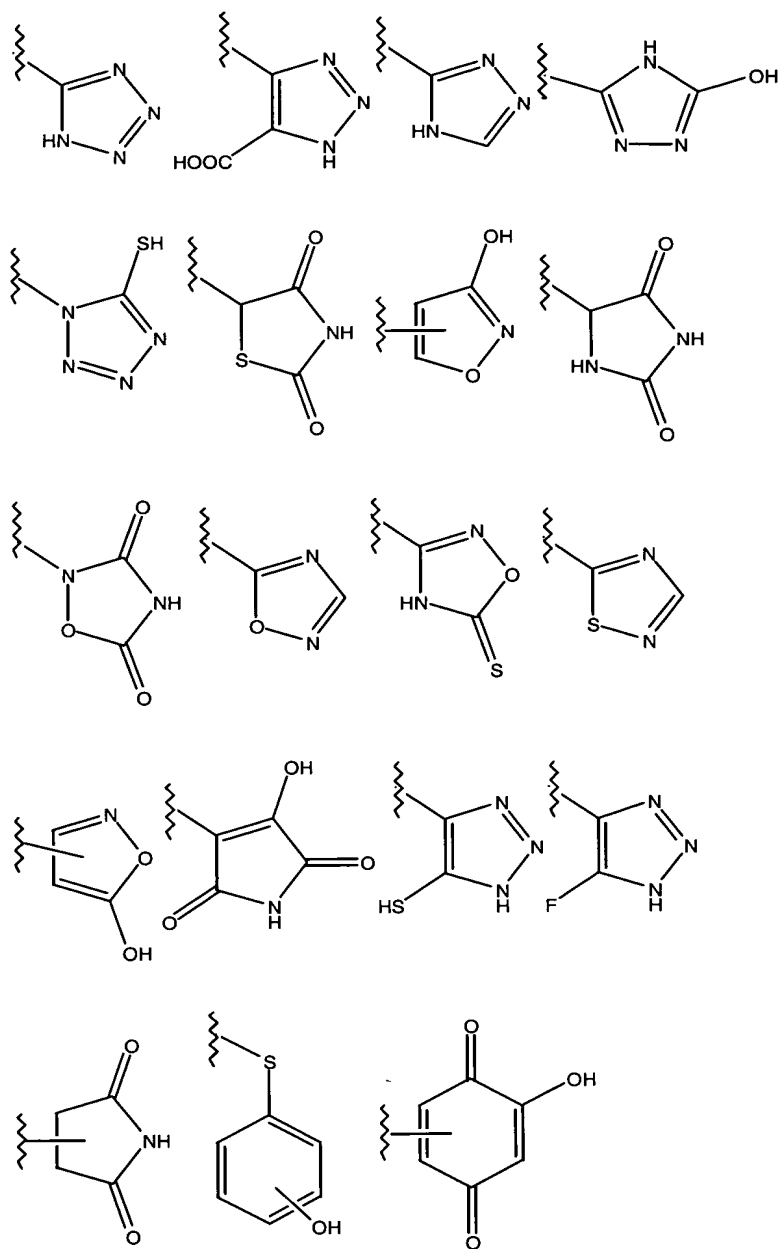
(LXIV)

in which:

- n is 1-3;
15 X is either O or S;
 R_1 is selected from the group consisting of C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, aryl, heteroaryl, carbocycle, or heterocycle;
20 D is a bond, or a C₁-C₁₀ straight or branched chain alkyl, C₂-C₁₀ alkenyl or C₂-C₁₀ alkynyl; and
 R_2 is a carboxylic acid or a carboxylic acid isostere; or a pharmaceutically acceptable salt, ester, or solvate thereof.

25

53. A method as claimed in Claim 52 in which
 R_2 is selected from the group:

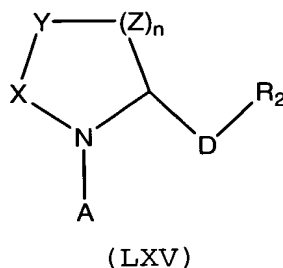


-COOH, -SO₃H, -SO₂HNR³, -PO₂(R³)₂, -CN, -PO₃(R³)₂, -OR³, -
 SR³, -NHCOR³, -N(R³)₂, -CON(R³)₂, -CONH(O)R³, -CONHNHSO₂R³,
 5 -COHNSO₂R³, and -CONR³CN wherein R³ is hydrogen, hydroxy,
 halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-alkoxy, C₂-C₆-
 alkenoxy, C₁-C₆-alkylaryloxy, aryloxy, aryl- C₁-C₆-
 alkyloxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-
 C₁-C₆-alkyl, sulfhydryl, thio- C₁-C₆-alkyl, C₁-C₆-

alkylthio, sulfonyl, C₁-C₆ straight or branched chain
alkyl, C₂-C₆ straight or branched chain alkenyl or
alkynyl, aryl, heteroaryl, carbocycle, heterocycle, and
CO₂R⁴ where R⁴ is hydrogen or C₁-C₉ straight or branched
5 chain alkyl or alkenyl.

54. A method as claimed in Claim 1 in which the
sensorineurotrophic compound is a compound of formula
(LXV):

10

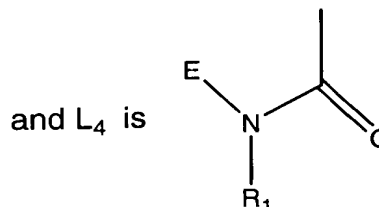
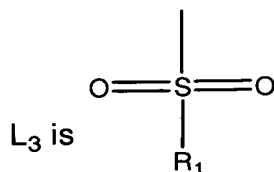
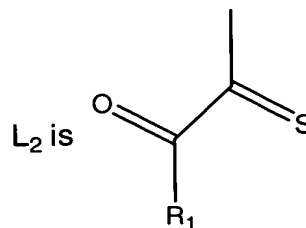
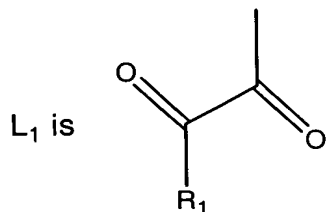


in which

X, Y, and Z are independently selected from the
15 group consisting of C, O, S, or N, provided that X, Y,
and Z are not all C;

n is 1-3;

A is selected from the group consisting of L₁, L₂,
L₃, or L₄, in which



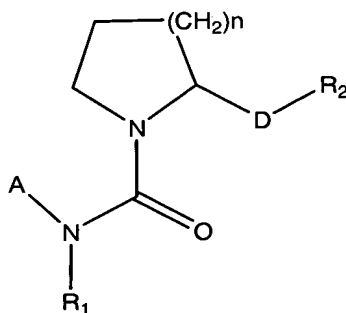
20

and R_1 and E, independently, are selected from the group consisting of hydrogen, C_1 - C_9 straight or branched chain alkyl, C_2 - C_9 straight or branched chain alkenyl, aryl, heteroaryl, carbocycle, and heterocycle;

R_2 is carboxylic acid or a carboxylic acid isostere; wherein said alkyl, alkenyl, alkynyl, aryl, heteroaryl, carbocycle, heterocycle, or carboxylic acid isostere is optionally substituted with one or more substituents selected from R^3 , where

R^3 is hydrogen, hydroxy, halo, halo(C_1 - C_6)-alkyl, thiocarbonyl, (C_1 - C_6)-alkoxy, (C_2 - C_6)-alkenoxy, (C_1 - C_6)-alkylaryloxy, aryloxy, aryl-(C_1 - C_6)-alkyloxy, cyano, nitro, imino, (C_1 - C_6)-alkylamino, amino-(C_1 - C_6)-alkyl, sulfhydryl, thio-(C_1 - C_6)-alkyl, (C_1 - C_6)-alkylthio, sulfonyl, C_1 - C_6 straight or branched chain alkyl, C_2 - C_6 straight or branched chain alkenyl or alkynyl, aryl, heteroaryl, carbocycle, heterocycle, or CO_2R^4 where R^4 is hydrogen or C_1 - C_9 straight or branched chain alkyl or alkenyl; or a pharmaceutically acceptable salt, ester, or solvate thereof.

55. A method as claimed in Claim 1 in which the sensorineurotrophic compound is a compound of formula (LXVI):



(LXVI)

in which:

n is 1-3;

R₁ and A are independently selected from the group consisting of hydrogen, C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, aryl, heteroaryl, carbocycle, and heterocycle;

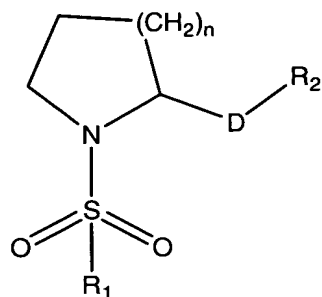
D is a bond, or a C₁-C₁₀ straight or branched chain alkyl, C₂-C₁₀ alkenyl or C₂-C₁₀ alkynyl;

R₂ is carboxylic acid or a carboxylic acid isostere; wherein said alkyl, alkenyl, alkynyl, aryl, heteroaryl, carbocycle, heterocycle, or carboxylic acid isostere is optionally substituted with one or more substituents selected from R³, where

R³ is hydrogen, hydroxy, halo, halo(C₁-C₆)-alkyl, thiocarbonyl, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenoxy, (C₁-C₆)-alkylaryloxy, aryloxy, aryl-(C₁-C₆)-alkyloxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)-alkyl, (C₁-C₆)-alkylthio, sulfonyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl or alkynyl, aryl, heteroaryl, carbocycle, heterocycle, and CO₂R⁴ where R⁴ is hydrogen or C₁-C₉ straight or branched chain alkyl or alkenyl;

or a pharmaceutically acceptable salt, ester, or solvate thereof.

56. A method as claimed in Claim 1 in which the sensorineurotrophic compound is a compound of formula (LXVII):



(LXVII)

in which:

n is 1-3;

5 R₁ is selected from the group consisting of
hydrogen, C₁-C₉ straight or branched chain alkyl, C₂-C₉
straight or branched chain alkenyl, aryl, heteroaryl,
carbocycle, or heterocycle;

10 D is a bond, or a C₁-C₁₀ straight or branched chain
alkyl, C₂-C₁₀ alkenyl or C₂-C₁₀ alkynyl;

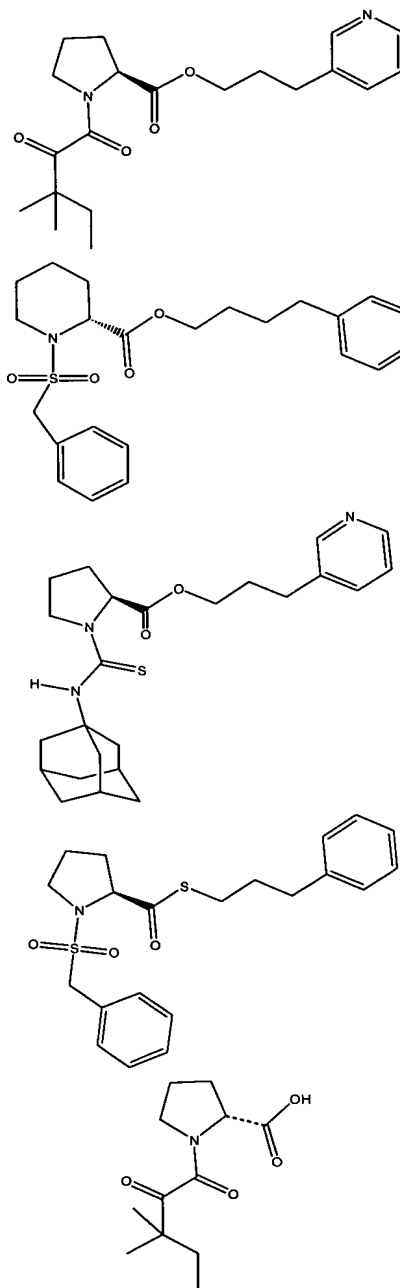
 R₂ is a carboxylic acid or a carboxylic acid
isostere;

wherein said alkyl, alkenyl, alkynyl, aryl, heteroaryl,
carbocycle, heterocycle, or carboxylic acid isostere is
15 optionally substituted with one or more substituents
selected from R³, where

 R³ is hydrogen, hydroxy, halo, , halo-(C₁-C₆)-alkoxy,
thiocarbonyl, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenyloxy, (C₁-C₆)-
alkylaryloxy, aryloxy, aryl-(C₁-C₆)-alkyloxy, cyano,
20 nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl,
sulfhydryl, thio-(C₁-C₆)alkyl, (C₁-C₆)-alkylthio,
sulfonyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆
straight or branched chain alkenyl or alkynyl, aryl,
heteroaryl, carbocycle, heterocycle, or CO₂R⁴ where R⁴ is
25 hydrogen or C₁-C₉ straight or branched chain alkyl or
alkenyl;
or a pharmaceutically acceptable salt, ester or solvate
thereof.

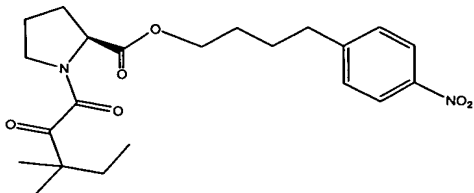
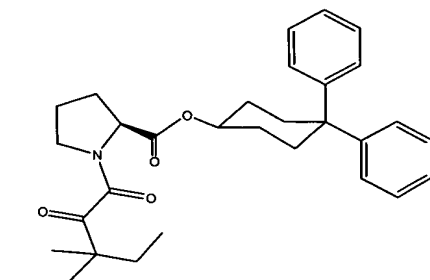
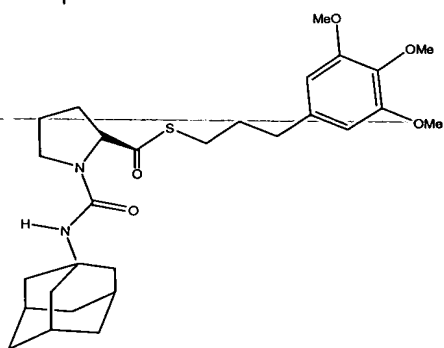
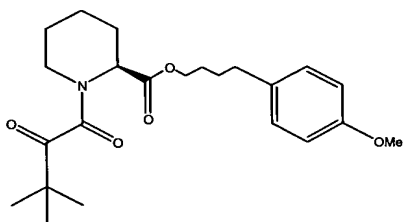
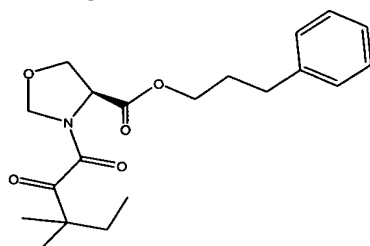
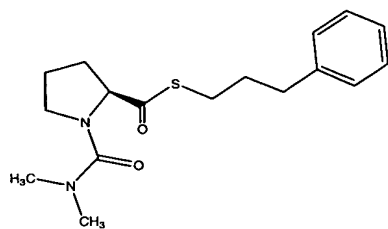
57. A method for treating or preventing hearing loss which comprises administering to a warm-blooded animal a compound selected from the group comprising:

5



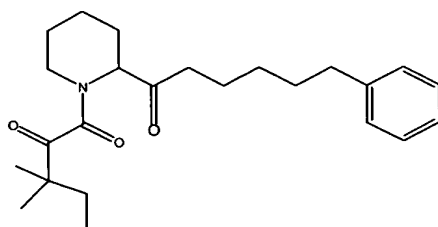
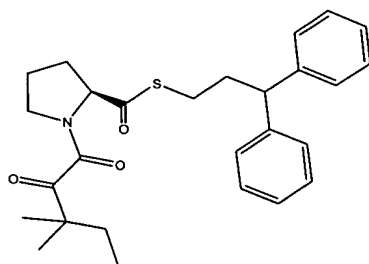
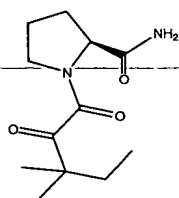
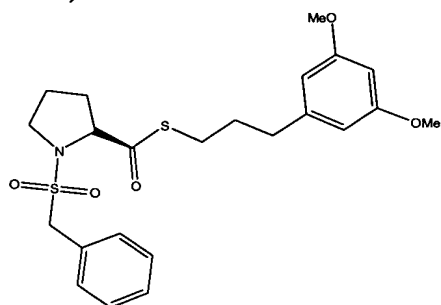
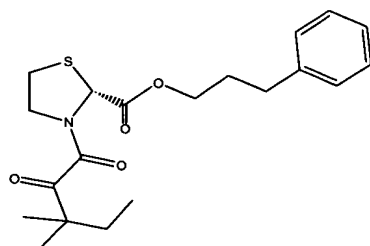
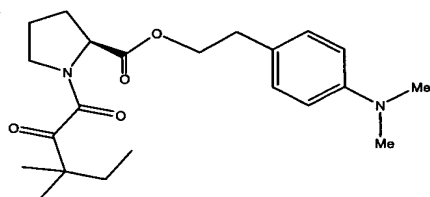
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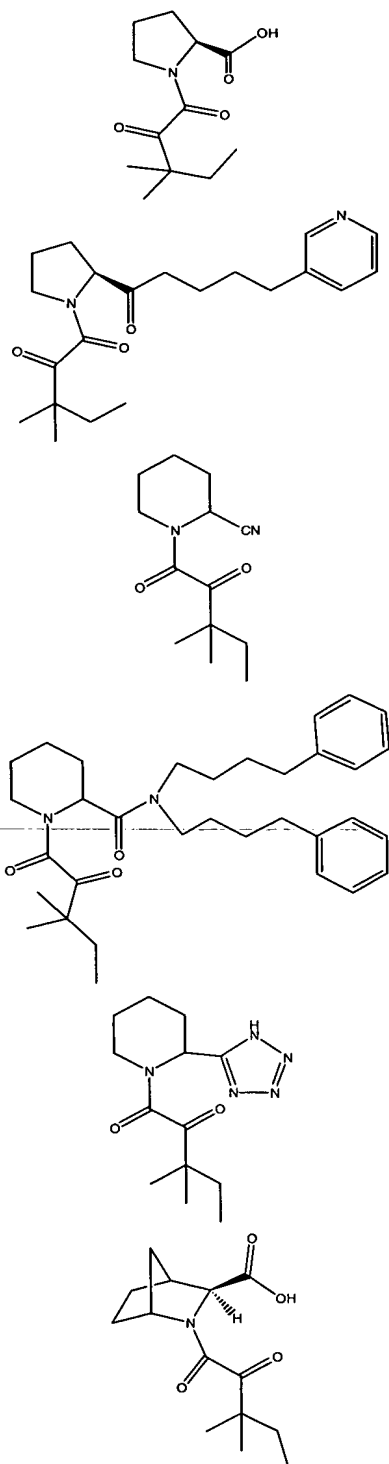
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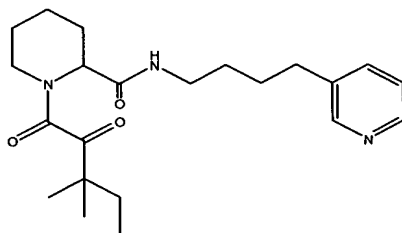
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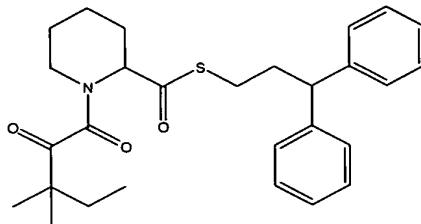
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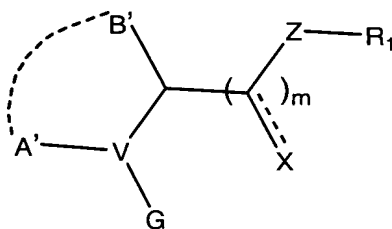


and



or a pharmaceutically acceptable salt, ester or solvate thereof.

- 5 58. A method for the prevention or treatment of injury or degeneration of inner ear sensory cells which comprises administering to a warm-blooded animal a sensorineurotrophic compound of the formula (I'):



(I')

wherein

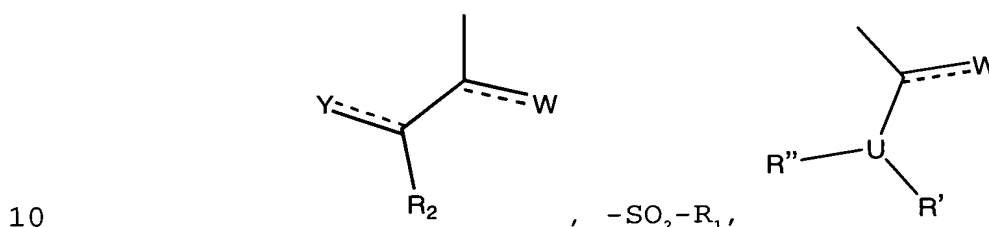
15 A' is hydrogen, C₁ or C₂ alkyl, or benzyl;

B' is C₁-C₄ straight or branched chain alkyl, benzyl or cyclohexylmethyl; or,

A' and B', taken together with the atoms to which they are attached, form a 5-7 membered saturated, unsaturated or aromatic heterocyclic or carbocyclic ring which contains one or more additional O, C(R₁)₂, S(O)_p, N, NR₁, or NR₅ atoms;

V is CH, S, or N;

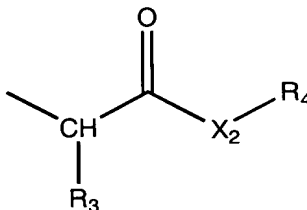
G is



each R₁, independently, is hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl or alkynyl, C₃-C₆ cycloalkyl, C₅-C₆ cycloalkenyl, a carboxylic acid or carboxylic acid isostere, N(R₄)_n, Ar₁, Ar₄ or K-L wherein said alkyl, cycloalkyl, cycloalkenyl, alkynyl, alkenyl, Ar₁ or Ar₄ is optionally substituted with one or more substituent(s) independently selected from the group consisting of:

2-furyl, 2-thienyl, pyridyl, phenyl, C₃-C₆ cycloalkyl wherein said furyl, thienyl, pyridyl, phenyl or cycloalkyl group optionally is substituted with C₁-C₄ alkoxy, (Ar₁)_n, halo, halo-C₁-C₆-alkyl, carbonyl, thiocarbonyl, C₁-C₆ thioester, cyano, imino, COOR₆ in which R₆ is C₁-C₆ straight or branched chain alkyl or alkenyl, hydroxy, nitro, trifluoromethyl, C₁-C₆ alkoxy, C₂-C₄ alkenyloxy, C₁-C₆ alkylaryloxy C₁-C₆ aryloxy, aryl-(C₁-C₆)-alkyloxy, phenoxy, benzyloxy, thio-(C₁-C₆)-alkyl, C₁-C₆-alkylthio,

5 sulfhydryl, sulfonyl, amino, (C₁-C₆)-mono- or
 di-alkylamino, amino-(C₁-C₆)-alkyl,
 aminocarboxy, C₃-C₈ cycloalkyl, C₁-C₆ straight or
 branched chain alkyl, C₂-C₆ straight or branched
 10 chain alkenyl optionally substituted with
 (Ar₁)_n, C₃-C₈ cycloalkyl, C₁-C₆ straight or
 branched chain alkyl, C₂-C₆ straight or branched
 chain alkenyl substituted with C₃-C₈ cycloalkyl,
 C₃-C₈ cycloalkyl, and Ar₂, and, wherein any
 15 carbon atom of an alkyl or alkenyl group may
 optionally replaced with O, NR₅, or S(O)_p; or,
 R₁ is a moiety of the formula:



15 wherein:
 R₃ is C₁-C₈ straight or branched chain alkyl which
 is optionally substituted with C₃-C₈ cycloalkyl
 or Ar₁;
 20 X₂ is O or NR₆, wherein R₆ is selected from the
 group consisting of hydrogen, C₁-C₆ straight or
 branched chain alkyl, and C₂-C₆ straight or
 branched chain alkenyl;
 25 R₄ is selected from the group consisting of
 phenyl, benzyl, C₁-C₅ straight or branched chain
 alkyl, C₂-C₅ straight or branched chain alkenyl,
 C₁-C₅ straight or branched chain alkyl
 substituted with phenyl, and C₂-C₅ straight or
 30 branched chain alkenyl substituted with phenyl;

R_2 is C_1-C_9 straight or branched chain alkyl, C_2-C_9 straight or branched chain alkenyl, C_3-C_8 cycloalkyl, C_5-C_7 cycloalkenyl or Ar_1 , wherein said alkyl, alkenyl, cycloalkyl, or
5 cycloalkenyl is optionally substituted with one or more substituents selected from the group consisting of C_1-C_6 straight or branched chain alkyl, C_2-C_6 straight or branched chain alkenyl, C_3-C_8 cycloalkyl, C_5-C_7 cycloalkenyl, $(Ar_1)_n$ and
10 hydroxy; or,

R_2 is either hydrogen or P; Y is either oxygen or CH-P, provided that if R_2 is hydrogen, then Y is CH-P, or if Y is oxygen then R_2 is P;
15

P is hydrogen, O- (C_1-C_4 straight or branched chain alkyl), O- (C_2-C_4 straight or branched chain alkenyl), C_1-C_6 straight or branched chain alkyl, C_2-C_6 straight or branched chain
20 alkenyl, C_5-C_7 cycloalkyl, C_5-C_7 cycloalkenyl substituted with C_1-C_4 straight or branched chain alkyl or C_2-C_4 straight or branched chain alkenyl, $(C_1-C_4$ alkyl or C_2-C_4 alkenyl)- Ar_5 , or
25 Ar_5

Ar_1 or Ar_2 , independently, is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is optionally substituted with one or more
30 substituent(s) independently selected from the group consisting of halo, hydroxy, nitro, trifluoromethyl, C_1-C_6 straight or branched chain alkyl, C_2-C_6 straight or branched chain alkenyl, C_3-C_8 cycloalkyl, C_5-C_7 cycloalkenyl,
35 C_1-C_4 alkoxy, C_2-C_4 alkenyloxy, phenoxy,

benzyloxy, and amino; wherein the individual ring contains 5-8 members; and wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group
 5 consisting of O, N, and S, and, wherein any aromatic or tertiary alkylamine is optionally oxidized to a corresponding N-oxide;

10 m is 0 or 1

n is 1 or 2;

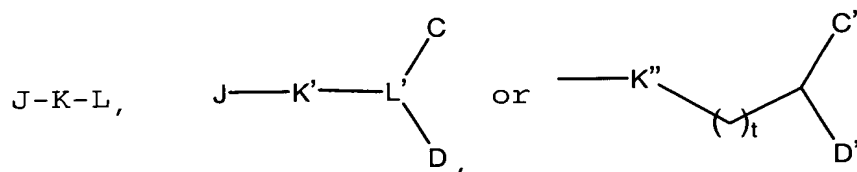
p is 0, 1, or 2;

15 t is 0, 1, 2, 3, or 4;

X is O, CH₂ or S;

W and Y, independently, are O, S, CH₂ or H₂;

20 Z is C(R₁)₂, O, S, a direct bond or NR₁; or, Z-R₁ is

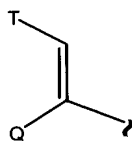


wherein:

25 C and D are, independently, hydrogen, Ar₄, Ar₁, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently
 30 selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, Ar₁ and Ar₄; wherein said

alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆ alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, haloalkyl, thiocarbonyl, C₁-C₆ ester, C₁-C₆ thioester, C₁-C₆ alkoxy, C₁-C₆ alkenoxy, cyano, nitro, imino, C₁-C₆ alkylamino, amino-(C₁-C₆)alkyl, sulfhydryl, thio-(C₁-C₆)alkyl, or sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NR₅, or (SO)_p;

C' and D' are independently hydrogen, Ar₅, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₅, wherein, one or two carbon atom(s) of said alkyl or alkenyl may be substituted with one or two heteroatom(s) independently selected from the group consisting of oxygen, sulfur, SO, and SO₂ in chemically reasonable substitution patterns, or



wherein Q is hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; and

T is Ar₅ or C₅-C₇ cycloalkyl substituted at positions 3 and 4 with substituents independently selected from the group consisting of hydrogen, hydroxy, O-(C₁-C₄ alkyl), O-(C₂-C₄ alkenyl), and carbonyl
5 J is O, NR₁, S, or (CR₁)₂;

K is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar₃; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl or Ar₃, is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen;
10 15 20 wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl or Ar₃, is optionally replaced with O, NR''', or S(O)_p;

K' is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, haloalkyl, thiocarbonyl, ester, thioester, alkoxy, alkenoxy, cyano, nitro, imino, alkylamino, aminoalkyl, sulfhydryl, thioalkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NR₅,
25 30 35 S(O)_p;

K'' is $C(R_1)_2$, O, S, a direct bond or NR_1 ,

5 R''' is selected from the group consisting of
hydrogen, C_1-C_4 straight or branched chain
alkyl, C_3-C_4 straight or branched chain alkenyl
or alkynyl, and C_1-C_4 bridging alkyl wherein a
bridge is formed between the nitrogen and a
carbon atom of said alkyl or alkenyl chain
10 containing said heteroatom to form a ring,
wherein said ring is optionally fused to an Ar_3
group;

15 L is an aromatic amine or a tertiary amine
oxidized to a corresponding N-oxide;
said aromatic amine being selected from the
group consisting of pyridyl, pyrimidyl,
quinolinyl, and isoquinolinyl, said aromatic
amine being optionally substituted with one or
20 more substituent(s) independently selected from
the group consisting of halo, hydroxy, nitro,
trifluoromethyl, C_1-C_6 straight or branched
chain alkyl, C_2-C_6 straight or branched chain
alkenyl, C_1-C_4 alkoxy, C_2-C_4 alkenyloxy, phenoxy,
25 benzyloxy, and amino; and wherein

said tertiary amine is $NR_xR_yR_z$, wherein R_x ,
 R_y , and R_z are independently selected from the
group consisting of C_1-C_6 straight or branched
chain alkyl and C_2-C_6 straight or branched chain
alkenyl; wherein said alkyl or alkenyl is
30 optionally substituted with one or more
substituent(s) independently selected from the
group consisting of C_1-C_6 straight or branched
chain alkyl, C_2-C_6 straight or branched chain
alkenyl, C_3-C_8 cycloalkyl, C_5-C_7 cycloalkenyl,
35 hydroxy, carbonyl oxygen, and Ar_3 ; wherein said

alkyl, alkenyl, cycloalkyl, cycloalkenyl, or
Ar₃ is optionally substituted with C₁-C₄ alkyl,
C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen;
wherein any carbon atom of said alkyl, alkenyl,
5 cycloalkyl, cycloalkenyl, or Ar₃ is optionally
replaced with O, NR', S(O)_p;

L' is a direct bond, C₁-C₆ straight or branched
chain alkyl, or C₂-C₆ straight or branched
10 chain alkenyl, wherein any carbon atom of said
alkyl or alkenyl is optionally substituted in
one or more position(s) with amino, halo,
haloalkyl, thiocarbonyl, ester, thioester,
alkoxy, alkenoxy, cyano, nitro, imino,
15 alkylamino, aminoalkyl, sulfhydryl, thioalkyl,
sulfonyl, or oxygen to form a carbonyl, or
wherein any carbon atom of said alkyl or
alkenyl is optionally replaced with O, NR₅,
S(O)_p

20

Ar₃ is selected from the group consisting of
pyrrolidinyl, pyridyl, pyrimidyl, pyrazyl,
pyridazyl, quinolinyl, and isoquinolinyl; or,

25 Ar₄ is an alicyclic or aromatic, mono-, bi- or
tricyclic, carbo- or heterocyclic ring, wherein
the ring is optionally substituted with one or
more substituent(s) independently selected from
the group consisting of alkylamino, amido,
30 amino, aminoalkyl, azo, benzyloxy, C₁-C₉
straight or branched chain alkyl, C₁-C₉ alkoxy,
C₂-C₉ alkenyloxy, C₂-C₉ straight or branched
chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇
cycloalkenyl, carbonyl, carboxy, cyano, diazo,
35 ester, formanilido, halo, haloalkyl, hydroxy,

imino, isocyano, isonitrilo, nitrilo, nitro, nitroso, phenoxy, sulfhydryl, sulfonylsulfoxy, thio, thioalkyl, thiocarbonyl, thiocyano, thioester, thioformamido, trifluoromethyl, and carboxylic and heterocyclic moieties; wherein the individual alicyclic or aromatic ring contains 5-8 members and wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Ar₅ is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, monocyclic and bicyclic heterocyclic ring systems with individual ring sizes being 5 or 6 which contain in either or both rings a total of 1-4 heteroatom(s) independently selected from the group consisting of oxygen, nitrogen and sulfur; wherein Ar₅ optionally contains 1-3 substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, hydroxymethyl, nitro, CF₃, trifluoromethoxy, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, O-(C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄ straight or branched chain alkenyl), O-benzyl, O-phenyl, amino, 1,2-methylenedioxy, carbonyl, and phenyl;

R₅ is selected from the group consisting of hydrogen, C₁-C₆ straight or branched chain alkyl, C₃-C₆ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a
5 bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar₄ or Ar₁ group;

10

U is either O or N, provided that:

when U is O, then R' is a lone pair of electrons and R'' is selected from the group consisting of Ar₄, C₃-C₈ cycloalkyl, C₁-C₉ straight or
15 branched chain alkyl, and C₂-C₉ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar₄ and C₃-C₈
20 cycloalkyl; and

when U is N, then R' and R'' are, independently, selected from the group consisting of hydrogen, Ar₄, C₃-C₁₀ cycloalkyl, a C₇-C₁₂ bi- or
25 tri-cyclic carbocycle, C₁-C₉ straight or branched chain alkyl, and C₂-C₉ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar₄ and C₃-C₈
30 cycloalkyl; or R' and R'' are taken together to form a heterocyclic 5- or 6-membered ring selected from the group consisting of

a pharmaceutically acceptable salt, ester or solvate thereof.

(I)

A and B, together with the nitrogen and carbon atoms to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing one or more heteroatom(s) independently selected from the group consisting of O, S, SO, SO₂, N, NH, and NR₂;

Z is either S, CH₂, CHR₁ or CR₁R₃;

W and Y are independently O, S, CH₂ or H₂;

R₁ and R₃ are independently C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is substituted with one or more substituent(s) independently selected from the group consisting of (Ar₁)_n, C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain

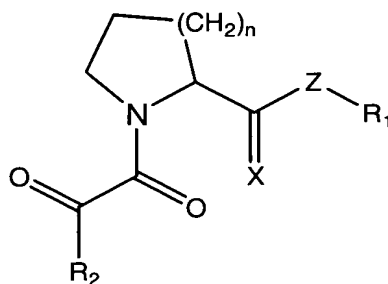
alkenyl substituted with $(Ar_1)_n$, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with C₃-C₈ cycloalkyl, and Ar₂;

5 n is 1 or 2;

 R₂ is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is either
10 unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₄ straight or branched chain alkyl, C₂-C₄ straight or branched chain alkenyl, and hydroxy; and

 Ar₁ and Ar₂ are independently an alicyclic or
15 aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein said ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxyl, nitro, trifluoromethyl, C₁-C₆ straight or branched chain
20 alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino; wherein the individual ring size is 5-8 members; and wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N,
25 and S.

60. A method as claimed in Claim 59 in which the sensorineurotrophic compound is a compound of formula II:



(II)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

n is 1 or 2;

10 X is O or S;

Z is selected from the group consisting of S, CH₂, CHR₁, and CR₁R₃;

R₁ and R₃ are independently selected from the group consisting of C₁-C₅ straight or branched chain alkyl, C₂-C₅ straight or branched chain alkenyl, and Ar₁, wherein
 15 said alkyl, alkenyl or Ar₁ is unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, nitro, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, hydroxy, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, amino, and Ar₁;

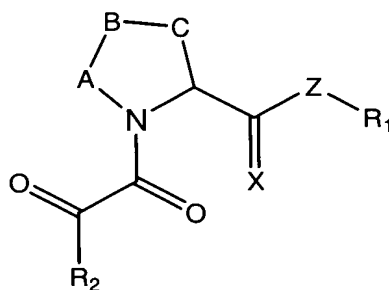
R₂ is selected from the group consisting of C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, and Ar₁; and
 25

Ar₁ is phenyl, benzyl, pyridyl, fluorenyl, thioindolyl or naphthyl, wherein said Ar₁ is unsubstituted or substituted with one or more substituent(s) independently selected from the group

consisting of halo, trifluoromethyl, hydroxy, nitro, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino.

5

61. A method as claimed in Claim 59 in which the sensorineurotrophic compound is a compound of formula III:



10

(III)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

15 A, B, and C are independently CH₂, O, S, SO, SO₂, NH or NR₂;

 X is O or S;

 Z is S, CH₂, CHR₁ or CR₁R₃;

 R₁ and R₃ are independently C₁-C₆ straight or
20 branched chain alkyl or C₂-C₆ straight or branched chain
 alkenyl, wherein said alkyl or alkenyl is substituted
 with one or more substituent(s) independently selected
 from the group consisting of (Ar₁)_n, C₁-C₆ straight or
 branched chain alkyl or C₂-C₆ straight or branched chain
25 alkenyl substituted with (Ar₁)_n, C₃-C₈ cycloalkyl, C₁-C₆
 straight or branched chain alkyl or C₂-C₆ straight or
 branched chain alkenyl substituted with C₃-C₈ cycloalkyl,
 and Ar₂;

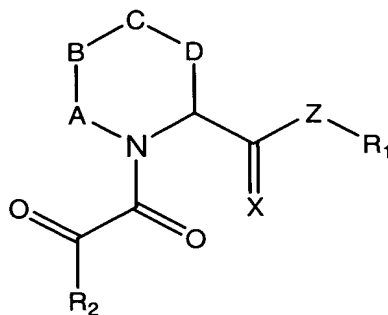
 n is 1 or 2;

R_2 is either C_1 - C_9 straight or branched chain alkyl, C_2 - C_9 straight or branched chain alkenyl, C_3 - C_8 cycloalkyl, C_5 - C_7 cycloalkenyl or Ar_1 , wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is either

5 unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C_1 - C_4 straight or branched chain alkyl, C_2 - C_4 straight or branched chain alkenyl, and hydroxyl; and

Ar_1 and Ar_2 are independently an alicyclic or
10 aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein said ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxyl, nitro, trifluoromethyl, C_1 - C_6 straight or branched chain
15 alkyl, C_2 - C_6 straight or branched chain alkenyl, C_1 - C_4 alkoxy, C_2 - C_4 alkenyloxy, phenoxy, benzyloxy, and amino; wherein the individual ring size is 5-8 members; and wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N,
20 and S.

62. A method as claimed in Claim 59 in which the sensorineurotrophic compound is a compound of formula IV:



(IV)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

A, B, C and D are independently CH_2 , O, S, SO, SO_2 , NH or NR_2 ;

5 X is O or S;

Z is S, CH_2 , CHR_1 or CR_1R_3 ;

R_1 and R_3 are independently C_1 - C_6 straight or branched chain alkyl or C_2 - C_6 straight or branched chain alkenyl, wherein said alkyl or alkenyl is substituted
10 with one or more substituent(s) independently selected from the group consisting of $(\text{Ar}_1)_n$, C_1 - C_6 straight or branched chain alkyl or C_2 - C_6 straight or branched chain alkenyl substituted with $(\text{Ar}_1)_n$, C_3 - C_8 cycloalkyl, C_1 - C_6 straight or branched chain alkyl or C_2 - C_6 straight or
15 branched chain alkenyl substituted with C_3 - C_8 cycloalkyl, and Ar_2 ;

n is 1 or 2;

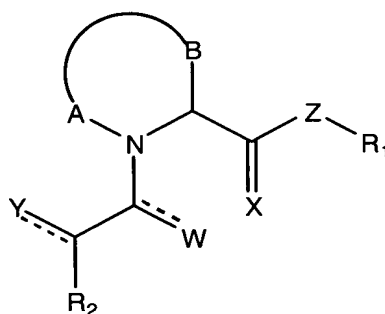
R_2 is either C_1 - C_9 straight or branched chain alkyl, C_2 - C_9 straight or branched chain alkenyl, C_3 - C_8
20 cycloalkyl, C_5 - C_7 cycloalkenyl or Ar_1 , wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C_3 - C_8 cycloalkyl, C_1 - C_4 straight or branched
25 chain alkyl, C_2 - C_4 straight or branched chain alkenyl, and hydroxyl; and

Ar_1 and Ar_2 are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein said ring is either unsubstituted or
30 substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxyl, nitro, trifluoro-methyl, C_1 - C_6 straight or branched chain alkyl, C_2 - C_6 straight or branched chain alkenyl, C_1 - C_4 alkoxy, C_2 - C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

wherein the individual ring size is 5-8 members; and
 wherein the heterocyclic ring contains 1-6 heteroatom(s)
 independently selected from the group consisting of O, N,
 and S.

5

63. A method as claimed in Claim 58 in which the
 sensorineurotrophic agent may be a compound of formula
 VI:



(VI)

10

or a pharmaceutically acceptable salt, ester, or solvate
 thereof, wherein:

A and B, together with the nitrogen and carbon atoms
 to which they are respectively attached, form a 5-7
 membered saturated or unsaturated heterocyclic ring
 containing, in addition to the nitrogen atom, one or more
 heteroatom(s) independently selected from the group
 consisting of O, S, SO, SO₂, N, NH, and NR₁;

20

X is O or S;

Z is O, NH or NR₁;

W and Y are independently O, S, CH₂ or H₂;

R₁ is C₁-C₆ straight or branched chain alkyl or C₂-C₆
 straight or branched chain alkenyl, which is substituted
 with one or more substituent(s) independently selected
 from the group consisting of (Ar₁)_n, C₁-C₆ straight or
 branched chain alkyl or C₂-C₆ straight or branched chain
 alkenyl substituted with (Ar₁)_n, C₃-C₈ cycloalkyl, C₁-C₆

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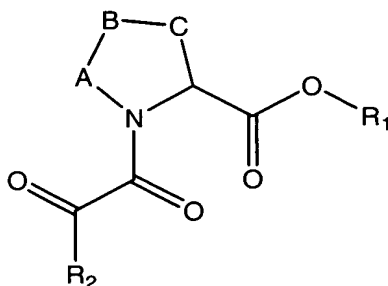
straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with C₃-C₈ cycloalkyl, and Ar₂;

n is 1 or 2;

- 5 R₂ is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain or alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is either unsubstituted or substituted with one or more
- 10 substituent(s) independently selected from the group consisting of C₁-C₄ straight or branched chain alkyl, C₂-C₄ straight or branched chain alkenyl, and hydroxyl; and
- Ar₁ and Ar₂ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic
- 15 ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxyl, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄
- 20 alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino; wherein the individual ring size is 5-8 members; and wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S.

25

64. The method of Claim 63 in which the sensorineurotrophic compound is a compound of formula VII:



(VII)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

5 A, B and C are independently CH₂, O, S, SO, SO₂, NH or NR₁;

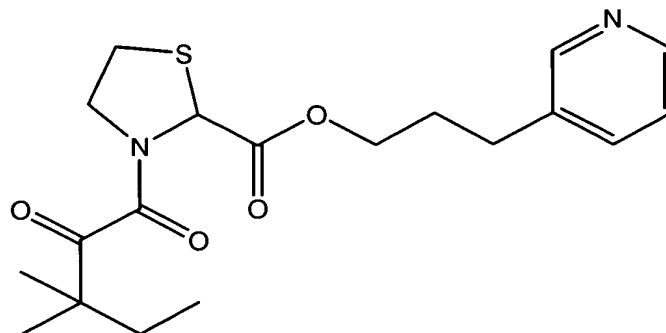
R₁ is C₁-C₅ straight or branched chain alkyl or C₂-C₅ straight or branched chain alkenyl, which is substituted with one or more substituent(s) independently selected from the group consisting of (Ar₁)_n and C₁-C₆ straight or
10 branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with (Ar₁)_n;

n is 1 or 2;

R₂ is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₈
15 cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁; and

Ar₁ is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group
20 consisting of halo, hydroxyl, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino; wherein the individual ring size is 5-8 members; and wherein the heterocyclic
25 ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S.

65. The method of Claim 64 in which the sensorineurotrophic compound is:



66. A method as claimed in Claim 64 in which:

A is CH₂;

5 B is CH₂ or S;

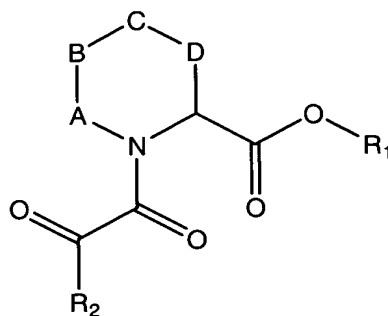
C is CH₂ or NH;

R₁ is selected from the group consisting of 3-phenylpropyl and 3-(3-pyridyl)propyl; and

10 R₂ is selected from the group consisting of 1,1-dimethylpropyl, cyclohexyl, and *tert*-butyl.

67. A method as claimed in Claim 63 in which the sensorineurotrophic compound is a compound of formula VIII:

15



(VIII)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

20 A, B, C and D are independently CH₂, O, S, SO, SO₂, NH or NR₁;

R_1 is C_1 - C_5 straight or branched chain alkyl or C_2 - C_5 straight or branched chain alkenyl, which is substituted with one or more substituent(s) independently selected from the group consisting of $(Ar_1)_n$ and C_1 - C_6 straight or branched chain alkyl or C_2 - C_6 straight or branched chain alkenyl substituted with $(Ar_1)_n$;

n is 1 or 2;

R_2 is either C_1 - C_9 straight or branched chain alkyl, C_2 - C_9 straight or branched chain alkenyl, C_3 - C_8 cycloalkyl, C_5 - C_7 cycloalkenyl, or Ar_1 ; and

Ar_1 is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxyl, nitro, trifluoromethyl, C_1 - C_6 straight or branched chain alkyl, C_2 - C_6 straight or branched chain alkenyl, C_1 - C_4 alkoxy, C_2 - C_4 alkenyloxy, phenoxy, benzyloxy, and amino; wherein the individual ring size is 5-8 members; and wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S.

68. A method of Claim 67 in which:

A is CH_2 ;

25 B is CH_2 ;

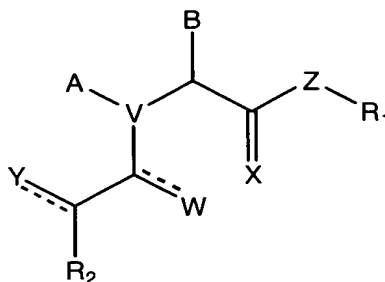
C is S, O or NH;

D is CH_2 ;

R_1 is selected from the group consisting of 3-phenylpropyl and (3,4,5-trimethoxy)phenylpropyl; and

30 R_2 is selected from the group consisting of 1,1-dimethylpropyl, cyclohexyl, *tert*-butyl, phenyl, and 3,4,5-trimethoxyphenyl.

69. A method as claimed in Claim 58 in which the sensorineurotrophic agent may be a compound of formula IX:



(IX)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

V is CH, N, or S;

A and B, together with V and the carbon atom to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing, in addition to V, one or more heteroatom(s) independently selected from the group consisting of O, S, SO, SO₂, N, NH, and NR;

R is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₉ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₃, wherein R is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, halo-C₁-C₆-alkyl, carbonyl, carboxy, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, thio-C₁-C₆-alkyl, C₁-C₆-alkylthio, sulfhydryl, amino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, aminocarboxyl, and Ar₄;

Ar₃ and Ar₄ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring; wherein the individual ring size is 5-8 members;

wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and

X is O or S;

5 Z is O, NH or NR₁;

W and Y are independently O, S, CH₂ or H₂;

R₁ is C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, which is substituted with one or more substituent(s) independently selected
10 from the group consisting of (Ar₁)_n, C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with (Ar₁)_n, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with C₃-C₈ cycloalkyl,
15 and Ar₂;

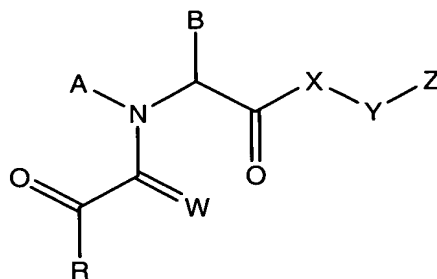
n is 1 or 2;

R₂ is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain or alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, wherein said
20 alkyl, alkenyl, cycloalkyl or cycloalkenyl is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₄ straight or branched chain alkyl, C₂-C₄ straight or branched chain alkenyl, and hydroxyl; and

25 Ar₁ and Ar₂ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxyl,
30 nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino; wherein the individual ring size is 5-8 members; and wherein the heterocyclic ring contains 1-6 heteroatom(s)

independently selected from the group consisting of O, N, and S.

70. A method as claimed in Claim 58 in which the
5 sensorineurotrophic compound is a compound of formula X:



(X)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

- 10 A and B, together with the nitrogen and carbon atoms to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing one or more heteroatom(s) independently selected from the group consisting of CH, CH₂, O, S, SO,
15 SO₂, N, NH, and NR₁;

W is O, S, CH₂, or H₂;

- R is C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, which is optionally substituted
20 with one or more substituent(s) independently selected from the group consisting of C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, and Ar₂;

- Ar₁ and Ar₂ are independently selected from the group consisting of 1-naphthyl, 2-naphthyl, 1-indolyl, 2-
25 indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, having one or more substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl,

C₂-C₆ straight or branched chain alkenyl, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

X is O, NH, NR₁, S, CH, CR₁, or CR₁R₃;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl;
5 wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-
10 C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl,
15 cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄
20 bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Z is an aromatic amine or a tertiary amine oxidized
25 to a corresponding N-oxide;

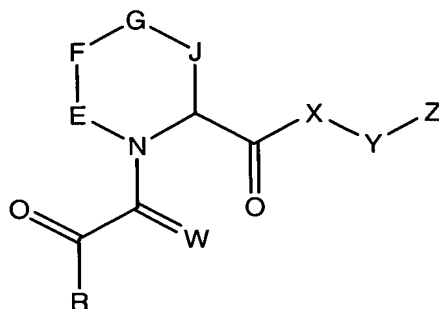
said aromatic amine is selected from the group consisting of pyridyl, pyrimidyl, quinolinyl, or isoquinolinyl, which is either unsubstituted or substituted with one or more substituent(s) independently
30 selected from the group consisting of halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

said tertiary amine is $\text{NR}_4\text{R}_5\text{R}_6$, wherein R_4 , R_5 , and R_6 are independently selected from the group consisting of C_1 - C_6 straight or branched chain alkyl or C_2 - C_6 straight or branched chain alkenyl optionally substituted with one or more substituent(s) independently selected from the group consisting of C_1 - C_6 straight or branched chain alkyl, C_2 - C_6 straight or branched chain alkenyl, C_3 - C_8 cycloalkyl, C_5 - C_7 cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C_1 - C_4 alkyl, C_2 - C_4 alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR_1 , S, SO, or SO_2 ;

Ar is selected from the group consisting of pyrrolidinyl, pyridyl, pyrimidyl, pyrazyl, pyridazyl, quinolinyl, and isoquinolinyl; and

R_1 and R_3 are independently hydrogen, C_1 - C_4 straight or branched chain alkyl, C_3 - C_4 straight or branched chain alkenyl or alkynyl, or Y-Z.

71. A method as claimed in Claim 70 in which the sensorineurotrophic compound is a compound of formula XI:



(XI)

25

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

E, F, G and J are independently CH₂, O, S, SO, SO₂, NH or NR₁;

W is O, S, CH₂, or H₂;

R is C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, which is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, and Ar₁;

Ar₁ is selected from the group consisting of 1-naphthyl, 2-naphthyl, 1-indolyl, 2-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl, having one or more substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

X is O, NH, NR₁, S, CH, CR₁, or CR₁R₃;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄

straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said
5 ring is optionally fused to an Ar group;

Z is an aromatic amine or a tertiary amine oxidized to a corresponding N-oxide;

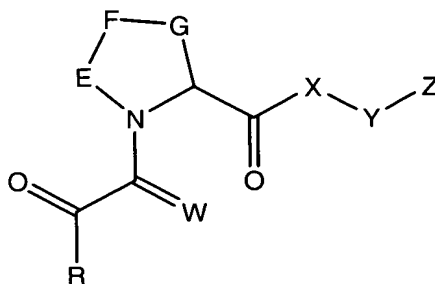
said aromatic amine is pyridyl, pyrimidyl, quinolinyl, and isoquinolinyl, which is either
10 unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy,
15 phenoxy, benzyloxy, and amino;

said tertiary amine is NR₄R₅R₆, wherein R₄, R₅, and R₆ are independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl and C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl
20 is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein
25 said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₁, S, SO, or SO₂;

30 Ar is selected from the group consisting of pyrrolidinyl, pyridyl, pyrimidyl, pyrazyl, pyridazyl, quinolinyl, and isoquinolinyl; and

R_1 and R_3 are independently hydrogen, C_1 - C_4 straight or branched chain alkyl, C_3 - C_4 straight or branched chain alkenyl or alkynyl, or Y-Z.

- 5 72. A method as claimed in Claim 70 in which the sensorineurotrophic compound is a compound of formula XII:



(XII)

- 10 or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

E, F, and G are independently CH_2 , O, S, SO, SO_2 , NH or NR_1 ;

W is O, S, CH_2 , or H_2 ;

- 15 R is C_1 - C_6 straight or branched chain alkyl, C_2 - C_6 straight or branched chain alkenyl, C_3 - C_8 cycloalkyl, C_5 - C_7 cycloalkenyl, or Ar_1 , which is optionally substituted with one or more substituent(s) independently selected from the group consisting of C_1 - C_4 alkyl, C_2 - C_4 alkenyl, hydroxy, C_3 - C_8 cycloalkyl, C_5 - C_7 cycloalkenyl, and Ar_1 ;

- Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 1-indolyl, 2-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, having one or more substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, C_1 - C_6 straight or branched chain alkyl, C_2 - C_6 straight or branched chain alkenyl, C_2 - C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

X is O, NH, NR₁, S, CH, CR₁, or CR₁R₃;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted
5 with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl,
10 cycloalkenyl, or Ar is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

15 R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain
20 containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Z is an aromatic amine or a tertiary amine oxidized to a corresponding N-oxide;

said aromatic amine is pyridyl, pyrimidyl,
25 quinolinyl, or isoquinolinyl, which is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or
30 branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

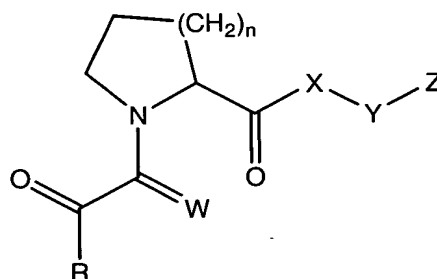
said tertiary amine is NR₄R₅R₆, wherein R₄, R₅, and R₆ are independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl and C₂-C₆ straight

or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₁, S, SO, or SO₂;

Ar is selected from the group consisting of pyrrolidinyl, pyridyl, pyrimidyl, pyrazyl, pyridazyl, quinolinyl, and isoquinolinyl; and

R₁ and R₃ are independently hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, or Y-Z.

73. A method as Claimed in Claim 70 in which the sensorineurotrophic compound is a compound of formula XIII:



(XIII)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

n is 1, 2, or 3, forming a 5-7 member heterocyclic ring;

W is O, S, CH₂, or H₂;

R is C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, which is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, and Ar₁;

Ar₁ is selected from the group consisting of 1-naphthyl, 2-naphthyl, 1-indolyl, 2-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, having one or more substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

X is O, NH, NR₁, S, CH, CR₁, or CR₁R₃;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain

containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Z is an aromatic amine or a tertiary amine oxidized to a corresponding N-oxide;

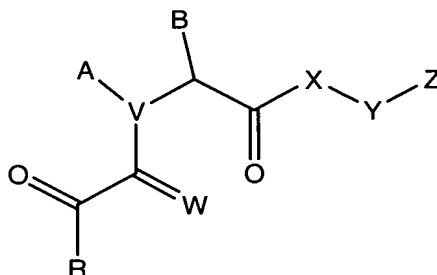
5 said aromatic amine is pyridyl, pyrimidyl, quinolinyl, or isoquinolinyl, which is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxy, nitro, trifluoromethyl, C₁-
10 C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

 said tertiary amine is NR₄R₅R₆, wherein R₄, R₅, and R₆ are independently selected from the group consisting of
15 C₁-C₆ straight or branched chain alkyl and C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or
20 branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of
25 said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₁, S, SO, or SO₂;

 Ar is selected from the group consisting of pyrrolidinyl, pyridyl, pyrimidyl, pyrazyl, pyridazyl, quinolinyl, and isoquinolinyl; and

30 R₁ and R₃, independently, are hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, or Y-Z.

74. A method as claimed in Claim 58 in which the sensorineurotrophic agent may be a compound of formula XIV:



(XIV)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

V is CH, N, or S;

A and B, together with V and the carbon atom to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing, in addition to V, one or more heteroatom(s) independently selected from the group consisting of O, S, SO, SO₂, N, NH, and NR₇;

R₇ is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₉ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₃, wherein R₇ is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, halo-C₁-C₆-alkyl, carbonyl, carboxy, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, thio-C₁-C₆-alkyl, C₁-C₆-alkylthio, sulfhydryl, amino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, aminocarboxyl, and Ar₄;

Ar₃ and Ar₄ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring; wherein the individual ring size is 5-8 members;

wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and

W is O, S, CH₂, or H₂;

5 R is C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, which is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₄ alkyl, C₂-C₄ alkenyl,
10 hydroxy, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, and Ar₂;

Ar₁ and Ar₂ are independently selected from the group consisting of 1-naphthyl, 2-naphthyl, 1-indolyl, 2-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, having one or
15 more substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

20 X is O, NH, NR₁, S, CH, CR₁, or CR₁R₃;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected
25 from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄
30 alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

R_2 is selected from the group consisting of hydrogen, C_1 - C_4 straight or branched chain alkyl, C_3 - C_4 straight or branched chain alkenyl or alkynyl, and C_1 - C_4 bridging alkyl wherein a bridge is formed between the
5 nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Z is an aromatic amine or a tertiary amine oxidized to a corresponding N-oxide;

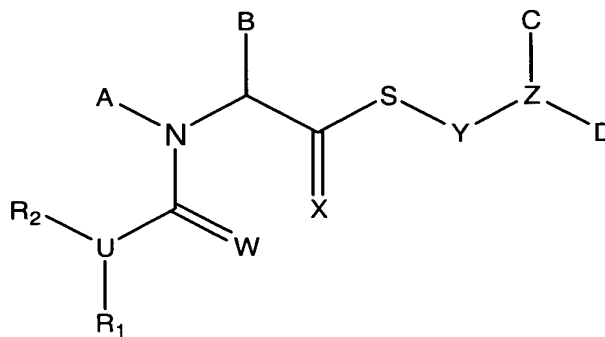
10 said aromatic amine is selected from the group consisting of pyridyl, pyrimidyl, quinolinyl, or isoquinolinyl, which is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxy,
15 nitro, trifluoromethyl, C_1 - C_6 straight or branched chain alkyl, C_2 - C_6 straight or branched chain alkenyl, C_1 - C_4 alkoxy, C_2 - C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

said tertiary amine is $NR_4R_5R_6$, wherein R_4 , R_5 , and R_6 are independently selected from the group consisting of
20 C_1 - C_6 straight or branched chain alkyl or C_2 - C_6 straight or branched chain alkenyl optionally substituted with one or more substituent(s) independently selected from the group consisting of C_1 - C_6 straight or branched chain alkyl, C_2 - C_6 straight or branched chain alkenyl, C_3 - C_8
25 cycloalkyl, C_5 - C_7 cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C_1 - C_4 alkyl, C_2 - C_4 alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl,
30 cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR_1 , S, SO, or SO_2 ;

Ar is selected from the group consisting of pyrrolidinyl, pyridyl, pyrimidyl, pyrazyl, pyridazyl, quinolinyl, and isoquinolinyl; and

R_1 and R_3 are independently hydrogen, C_1 - C_4 straight or branched chain alkyl, C_3 - C_4 straight or branched chain alkenyl or alkynyl, or Y-Z.

- 5 75. A method as claimed in Claim 58 in which the sensorineurotrophic compound is a compound of formula XV:



(XV)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

A and B, together with the nitrogen and carbon atoms to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing, in addition to the nitrogen atom, one or more additional heteroatom(s) independently selected from the group consisting of O, S, SO, SO₂, N, NH, and NR₃;

X is either O or S;

Y is a direct bond, C_1 - C_6 straight or branched chain alkyl, or C_2 - C_6 straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo- C_1 - C_6 -alkyl, thiocarbonyl, C_1 - C_6 -ester, thio- C_1 - C_6 -ester, C_1 - C_6 -alkoxy, C_2 - C_6 -alkenoxy, cyano, nitro, imino, C_1 - C_6 -alkylamino, amino- C_1 - C_6 -alkyl, sulfhydryl, thio- C_1 - C_6 -alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

R₃ is selected from the group consisting of hydrogen, C₁-C₆ straight or branched chain alkyl, C₃-C₆ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the
5 nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring
10 is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆-alkylamino, amido, amino, amino-C₁-C₆-alkyl, azo, benzyloxy, C₁-C₉ straight or branched chain alkyl, C₁-C₉ alkoxy, C₂-C₉ alkenyloxy, C₂-C₉ straight or
15 branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, carbonyl, carboxy, cyano, diazo, C₁-C₆-ester, formamido, halo, halo-C₁-C₆-alkyl, hydroxy, imino, isocyano, isonitrilo, nitrilo, nitro, nitroso, phenoxy, sulfhydryl, sulfonylsulfoxy, thio, thio-C₁-C₆-
20 alkyl, thiocarbonyl, thiocycano, thio-C₁-C₆-ester, thioformamido, trifluoromethyl, and carboxylic and heterocyclic moieties; wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group
25 consisting of O, N, and S; and wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl,
30 wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl,

sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

5 C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈
10 cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy,
15 C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein
20 any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

W is O or S; and

U is either O or N, provided that:

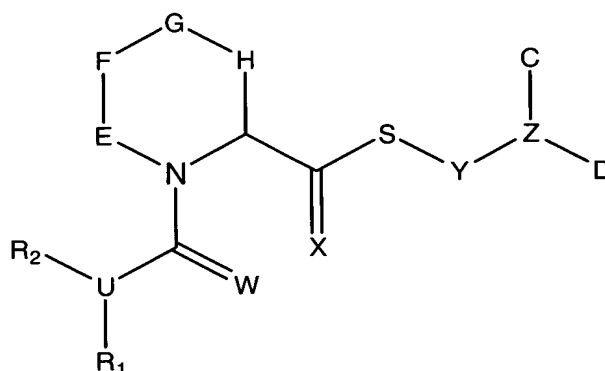
when U is O, then R₁ is a lone pair of electrons
25 and R₂ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more
30 substituent(s) independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; and

when U is N, then R₁ and R₂ are, independently, selected from the group consisting of hydrogen, Ar, C₃-C₁₀ cycloalkyl, C₇-C₁₂ bi- or tri-cyclic carbocycle, C₁-C₆

5 cycloalkyl; or R₁ and R₂ are taken together to form a
heterocyclic 5 or 6 membered ring selected from the group
consisting of pyrrolidine, imidazolidine, pyrazolidine,
piperidine, and piperazine.

76. A method as claimed in Claim 75 in which Ar is selected from the group consisting of phenyl, benzyl, naphthyl, indolyl, pyridyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl, purinyl, quinolinyl, isoquinolinyl, furyl, fluorenyl, thiophenyl, imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.

77. A method as claimed in Claim 75 in which the sensorineurotrophic compound is a compound of formula XVI:



(XVI)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

E, F, G and J are independently CH₂, O, S, SO, SO₂,
25 NH, or NR₃;

X is either 0 or S;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with
5 amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or
10 alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

R₃ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄
15 bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or
20 tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆-alkylamino, amido, amino, amino-C₁-C₆-alkyl, azo, benzyloxy, C₁-C₉ straight or branched chain
25 alkyl, C₁-C₉ alkoxy, C₂-C₉ alkenyloxy, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, carbonyl, carboxy, cyano, diazo, C₁-C₆-ester, formamido, halo, halo-C₁-C₆-alkyl, hydroxy, imino, isocyano, isonitrilo, nitrilo, nitro, nitroso,
30 phenoxy, sulfhydryl, sulfonylsulfoxy, thio, thio-C₁-C₆-alkyl, thiocarbonyl, thiocyano, thio-C₁-C₆-ester, thioformamido, trifluoromethyl, and carboxylic and heterocyclic moieties, including alicyclic and aromatic structures; wherein the individual ring size is 5-8

members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and wherein any aromatic or tertiary alkyl amine is optionally oxidized to a
5 corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with
10 amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or
15 alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is
20 optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl,
25 thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or sulfonyl; wherein any carbon atom of said alkyl or
30 alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

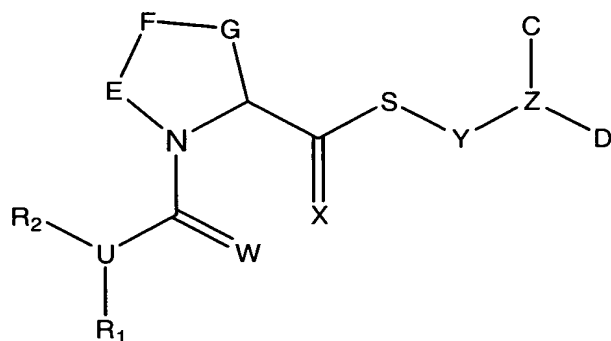
W is O or S; and

U is either O or N, provided that:

when U is O, then R₁ is a lone pair of electrons
and R₂ is selected from the group consisting of Ar,
C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain
5 alkyl, and C₂-C₆ straight or branched chain
alkenyl, wherein said alkyl or alkenyl is
optionally substituted with one or more
substituent(s) independently selected from the
group consisting of Ar and C₃-C₈ cycloalkyl; and
10 when U is N, then R₁ and R₂ are, independently,
selected from the group consisting of hydrogen,
Ar, C₃-C₁₀ cycloalkyl, C₇-C₁₂ bi- or tri-cyclic
carbocycle, C₁-C₆ straight or branched chain alkyl,
and C₂-C₆ straight or branched chain alkenyl,
15 wherein said alkyl or alkenyl is optionally
substituted with one or more substituent(s)
independently selected from the group consisting
of Ar and C₃-C₈ cycloalkyl; or R₁ and R₂ are taken
together to form a heterocyclic 5 or 6 membered
20 ring selected from the group consisting of
pyrrolidine, imidazolidine, pyrazolidine,
piperidine, and piperazine.

78. A method as claimed in Claim 77 in which Ar is
25 selected from the group consisting of phenyl, benzyl,
naphthyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl,
purinyl, quinolinyl, isoquinolinyl, furyl, thiophenyl,
imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.

30 79. A method as claimed in Claim 75 in which the
sensorineurotrophic compound is a compound of formula
XVII:



(XVII)

or a pharmaceutically acceptable salt, ester, or solvate
5 thereof, wherein:

E, F, and G are independently CH₂, O, S, SO, SO₂,
NH, and NR₃;

X is either O or S;

Y is a direct bond, C₁-C₆ straight or branched chain
10 alkyl, or C₂-C₆ straight or branched chain alkenyl,
wherein any carbon atom of said alkyl or alkenyl is
optionally substituted in one or more position(s) with
amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester,
thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano,
15 nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl,
sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form
a carbonyl, or wherein any carbon atom of said alkyl or
alkenyl is optionally replaced with O, NH, NR₃, S, SO, or
SO₂;

20 R₃ is selected from the group consisting of
hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄
straight or branched chain alkenyl or alkynyl, and C₁-C₄
bridging alkyl wherein a bridge is formed between the
nitrogen and a carbon atom of said alkyl or alkenyl chain
25 containing said heteroatom to form a ring, wherein said
ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring; wherein the ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group

5 consisting of C₁-C₆-alkylamino, amido, amino, amino-C₁-C₆-alkyl, azo, benzyloxy, C₁-C₉ straight or branched chain alkyl, C₁-C₉ alkoxy, C₂-C₉ alkenyloxy, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, carbonyl, carboxy, cyano, diazo, C₁-C₆-

10 ester, formanilido, halo, halo-C₁-C₆-alkyl, hydroxy, imino, isocyano, isonitrilo, nitrilo, nitro, nitroso, phenoxy, sulfhydryl, sulfonylsulfoxy, thio, thio-C₁-C₆-alkyl, thiocarbonyl, thiocyano, thio-C₁-C₆-ester, thioformamido, trifluoromethyl, and carboxylic and

15 heterocyclic moieties, including alicyclic and aromatic structures; wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and wherein any aromatic or

20 tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is

25 optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form

30 a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or

branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

W is O or S; and

U is either O or N, provided that:

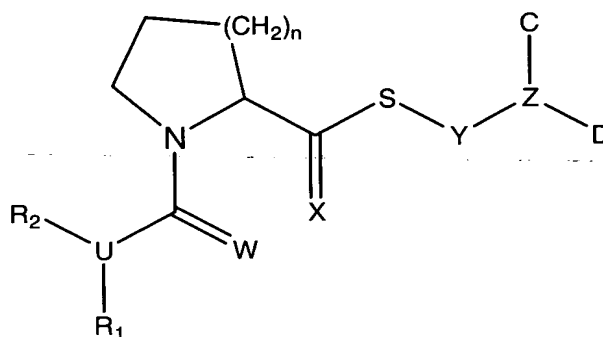
when U is O, then R₁ is a lone pair of electrons and R₂ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; and when U is N, then R₁ and R₂ are, independently, selected from the group consisting of hydrogen, Ar, C₃-C₈ cycloalkyl, C₇-C₁₂ bi- or tri-cyclic carbocycle, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; or R₁ and R₂ are taken

together to form a heterocyclic 5 or 6 membered ring selected from the group consisting of pyrrolidine, imidazolidine, pyrazolidine, piperidine, and piperazine.

5

80. A method as claimed in Claim 79 in which Ar is selected from the group consisting of phenyl, benzyl, naphthyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl, purinyl, quinolinyl, isoquinolinyl, furyl, thiophenyl, 10 imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.

81. A method as claimed in Claim 58 in which the sensorineurotrophic compound is a compound of formula XVIII:



15

(XVIII)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

20

n is 1, 2 or 3;

X is either O or S;

25

Y is a direct bond, C_1 - C_6 straight or branched chain alkyl, or C_2 - C_6 straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo- C_1 - C_6 -alkyl, thiocarbonyl, C_1 - C_6 -ester, thio- C_1 - C_6 -ester, C_1 - C_6 -alkoxy, C_2 - C_6 -alkenoxy, cyano, nitro, imino, C_1 - C_6 -alkylamino, amino- C_1 - C_6 -alkyl,

sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

5 R₃ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain
10 containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

 Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more
15 substituent(s) independently selected from the group consisting of C₁-C₆-alkylamino, amido, amino, amino-C₁-C₆-alkyl, azo, benzyloxy, C₁-C₉ straight or branched chain alkyl, C₁-C₉ alkoxy, C₂-C₉ alkenyloxy, C₂-C₉ straight or
20 branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, carbonyl, carboxy, cyano, diazo, C₁-C₆-ester, formamido, halo, halo-C₁-C₆-alkyl, hydroxy, imino, isocyano, isonitrilo, nitrilo, nitro, nitroso, phenoxy, sulfhydryl, sulfonylsulfoxy, thio, thio-C₁-C₆-alkyl, thiocarbonyl, thiocyano, thio-C₁-C₆-ester,
25 thioformamido, trifluoromethyl, and carboxylic and heterocyclic moieties, including alicyclic and aromatic structures; wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group
30 consisting of O, N, and S; and wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

 Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl,

wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, 5 nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

10 C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ 15 cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, alkoxy, C₂-C₆- 20 alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of 25 said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

W is O or S; and

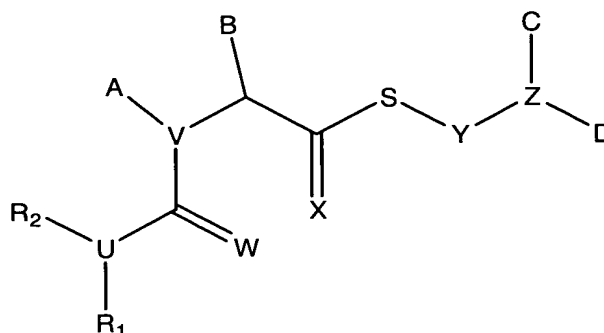
U is either O or N, provided that:

30 when U is O, then R₁ is a lone pair of electrons and R₂ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain or alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more

substituent(s) independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; and when U is N, then R₁ and R₂ are, independently, selected from the group consisting of hydrogen, Ar, C₃-C₁₀ cycloalkyl, C₇-C₁₂ bi- or tri-cyclic carbocycle, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; or R₁ and R₂ are taken together to form a heterocyclic 5 or 6 membered ring selected from the group consisting of pyrrolidine, imidazolidine, pyrazolidine, piperidine, and piperazine.

82. A method as claimed in Claim 81 in which Ar is selected from the group consisting of phenyl, benzyl, naphthyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl, purinyl, quinolinyl, isoquinolinyl, furyl, thiophenyl, imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.

83. A method as claimed in Claim 58 in which the sensorineurotrophic compound is a compound of formula XIX:



(XIX)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

V is CH, N, or S;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

R₃ is selected from the group consisting of hydrogen, C₁-C₆ straight or branched chain alkyl, C₃-C₆ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s); wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with

amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form
5 a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or
10 branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or
15 cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or
20 sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂; and

25 A and B, together with the nitrogen and carbon atoms to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing, in addition to the nitrogen atom, one or more additional heteroatom(s) independently selected from the
30 group consisting of O, S, SO, SO₂, N, NH, and NR₃;

X is either O or S;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more

substituent(s) independently selected from the group consisting of C₁-C₆-alkylamino, amido, amino, amino-C₁-C₆-alkyl, azo, benzyloxy, C₁-C₉ straight or branched chain alkyl, C₁-C₉ alkoxy, C₂-C₉ alkenyloxy, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, carbonyl, carboxy, cyano, diazo, C₁-C₆-ester, formanilido, halo, halo-C₁-C₆-alkyl, hydroxy, imino, isocyano, isonitrilo, nitrilo, nitro, nitroso, phenoxy, sulfhydryl, sulfonylsulfoxy, thio, thio-C₁-C₆-alkyl, thiocarbonyl, thiocyano, thio-C₁-C₆-ester, thioformamido, trifluoromethyl, and carboxylic and heterocyclic moieties; wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen,

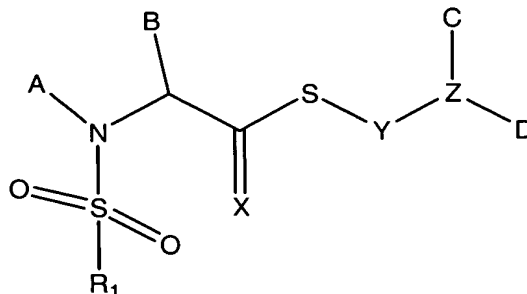
and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, 5 C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein 10 any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

W is O or S; and

U is either O or N, provided that:

when U is O, then R₁ is a lone pair of electrons and R₂ is selected from the group consisting of Ar, 15 C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more 20 substituent(s) independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; and when U is N, then R₁ and R₂ are, independently, selected from the group consisting of hydrogen, Ar, C₃-C₁₀ cycloalkyl, C₇-C₁₂ bi- or tri-cyclic carbocycle, C₁-C₆ 25 straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is substituted with one or more substituent(s) independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; or R₁ and R₂ are taken together to form a 30 heterocyclic 5 or 6 membered ring selected from the group consisting of pyrrolidine, imidazolidine, pyrazolidine, piperidine, and piperazine.

84. A method as claimed in Claim 58 in which the sensorineurotrophic compound is a compound of formula XX:



(XX)

- 5 a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

A and B, together with the nitrogen and carbon atoms to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing, in addition to the nitrogen atom, one or more heteroatom(s) independently selected from the group consisting of O, S, SO, SO₂, N, NH, and NR₂;

X is either O or S;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

25 R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the

nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or
5 tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s); wherein the individual ring size is 5-8 members; wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group
10 consisting of O, N, and S; wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl,
15 wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl,
20 sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or
25 branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or
30 cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or

sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally
5 replaced with O, NH, NR₂, S, SO, or SO₂; and

R₁ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or
10 more substituent(s) independently selected from the group consisting of Ar, C₃-C₈ cycloalkyl, amino, halo, halo-C₁-C₆-alkyl, hydroxy, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, carbonyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-
15 ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, and sulfonyl, wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂.

20

85. A method as claimed in claim 84 in which Ar is selected from the group consisting of phenyl, benzyl, naphthyl, indolyl, pyridyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl, purinyl, quinolinyl,
25 isoquinolinyl, furyl, fluorenyl, thiophenyl, imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.

86. A method as claimed in Claim 85 in which A and B, together with the nitrogen and carbon atoms to which they
30 are respectfully attached, form a 6 membered saturated or unsaturated heterocyclic ring; and R₂ is C₄-C₇ branched chain alkyl, C₄-C₇ cycloalkyl, phenyl, or 3,4,5-trimethoxyphenyl.

87. A method as claimed in Claim 84 in which the sensorineurotrophic compound is selected from the group consisting of:

3-(*para*-Methoxyphenyl)-1-propylmercaptyl(2*S*)-N-
5 (benzenesulfonyl)pyrrolidine-2-carboxylate;

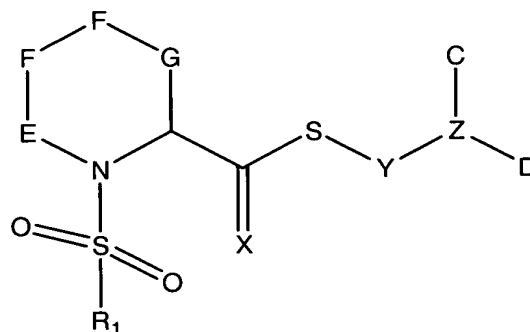
3-(*para*-Methoxyphenyl)-1-propylmercaptyl(2*S*)-N-(α -toluenesulfonyl)pyrrolidine-2-carboxylate;

3-(*para*-Methoxyphenyl)-1-propylmercaptyl(2*S*)-N-(α -toluenesulfonyl)pyrrolidine-2-carboxylate;

10 1,5-Diphenyl-3-pentylmercaptyl-N-(*para*-toluenesulfonyl)pipecolate; and

pharmaceutically acceptable salts and solvates thereof.

88. A method as claimed in Claim 84 in which the
15 sensorineurotrophic compound is a compound of formula XXI:



(XXI)

or a pharmaceutically acceptable salt, ester, or solvate
20 thereof, wherein:

E, F, G and J are independently CH₂, O, S, SO, SO₂, NH or NR₂;

X is either O or S;

Y is a direct bond, C₁-C₆ straight or branched chain
25 alkyl, or C₂-C₆ straight or branched chain alkenyl,
wherein any carbon atom of said alkyl or alkenyl is
optionally substituted in one or more position(s) with

amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form
5 a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄
10 straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

15 Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester,
20 thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

25 Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s); wherein the individual ring size is 5-8 members; wherein the heterocyclic ring contains 1-6
30 heteroatom(s) independently selected from the group consisting of O, N, and S; wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂; and

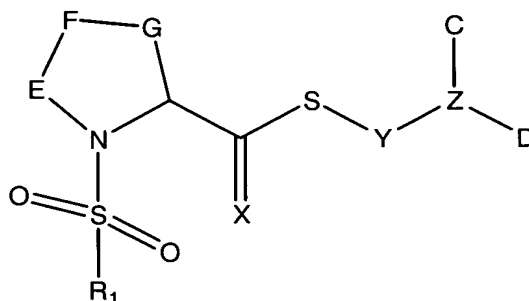
R₁ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar, C₃-C₈ cycloalkyl, amino, halo, halo-C₁-C₆-alkyl, hydroxy, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, carbonyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, and sulfonyl, wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂.

89. A method as claimed in Claim 88 in which Ar is selected from the group consisting of phenyl, benzyl,

naphthyl, indolyl, pyridyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl, purinyl, quinolinyl, isoquinolinyl, furyl, fluorenyl, thiophenyl, imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.

5

90. A method as claimed in Claim 84 in which the sensorineurotrophic agent is a compound of formula XXII:



(XXII)

10 or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

E, F, and G are independently CH₂, O, S, SO, SO₂, NH or NR₂;

X is either O or S;

15 Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-(C₁-C₆)-alkyl, thiocarbonyl, (C₁-C₆)-
 20 ester, thio-(C₁-C₆)-ester, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenoxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O,
 25 NH, NR₂, S, SO, or SO₂;

R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄

bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

5 Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s); wherein the individual ring size is 5-8 members; wherein the heterocyclic ring contains 1-6
10 heteroatom(s) independently selected from the group consisting of O, N, and S; wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

 Z is a direct bond, C₁-C₆ straight or branched chain
15 alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-(C₁-C₆)-alkyl, thiocarbonyl, (C₁-C₆)-ester, thio-(C₁-C₆)-ester, (C₁-C₆)-alkoxy, (C₂-C₆)-
20 alkenoxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

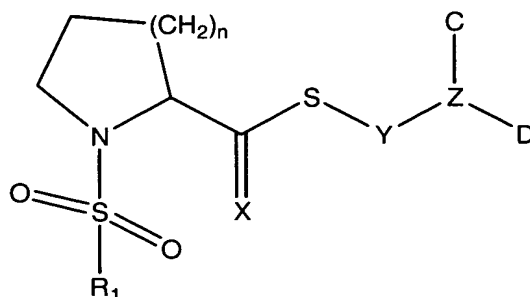
25 C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈
30 cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, or hydroxy; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or

more position(s) with oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂; and

R₁ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar, C₃-C₈ cycloalkyl, amino, halo, halo-(C₁-C₆)-alkyl, hydroxy, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, carbonyl, thiocarbonyl, (C₁-C₆)-ester, thio-(C₁-C₆)-ester, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenoxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)-alkyl, and sulfonyl, wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂.

91. A method as claimed in Claim 90 in which Ar is selected from the group consisting of phenyl, benzyl, naphthyl, indolyl, pyridyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl, purinyl, quinolinyl, isoquinolinyl, furyl, fluorenyl, thiophenyl, imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.

92. A method as claimed in Claim 84 in which the sensorineurotrophic compound is a compound of formula XXIII:



(XXIII)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

5 n is 1, 2 or 3;

 X is either O or S;

 Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is
 10 optionally substituted in one or more position(s) with amino, halo, halo-(C₁-C₆)-alkyl, thiocarbonyl, (C₁-C₆)-ester, thio-(C₁-C₆)-ester, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenoxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)-alkyl, sulfonyl,
 15 or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

 Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl,
 20 wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-(C₁-C₆)-alkyl, thiocarbonyl, (C₁-C₆)-ester, thio-(C₁-C₆)-ester, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenoxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)-alkyl, sulfonyl,
 25 or oxygen to form a carbonyl, or wherein any atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the
5 nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring
10 is either unsubstituted or substituted with one or more substituent(s); wherein the individual ring size is 5-8 members; wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; wherein any aromatic or
15 tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is
20 optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₄ alkyl,
25 C₂-C₄ alkenyl, or hydroxy; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂; and

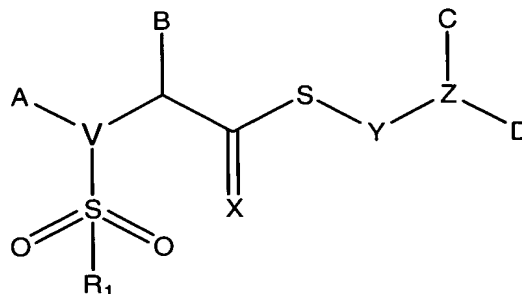
30 R₁ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group

consisting of Ar, C₃-C₈ cycloalkyl, amino, halo, halo-(C₁-C₆)-alkyl, hydroxy, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, carbonyl, thiocarbonyl, (C₁-C₆)-ester, thio-(C₁-C₆)-ester, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenoxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)-alkyl, and sulfonyl, wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂.

10

93. A method as claimed in Claim 92 in which Ar is selected from the group consisting of phenyl, benzyl, naphthyl, indolyl, pyridyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl, purinyl, quinolinyl, isoquinolinyl, furyl, fluorenyl, thiophenyl, imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.

94. A method as claimed in Claim 58 in which the sensorineurotrophic compound is a compound of formula XXIV:



(XXIV)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

25

V is CH, N, or S;

A and B, together with the nitrogen and carbon atoms to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring

containing, in addition to the nitrogen atom, one or more heteroatom(s) independently selected from the group consisting of O, S, SO, SO₂, N, NH, and NR₂;

X is either O or S;

5 Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester,
10 thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or
15 SO₂;

R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the
20 nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring
25 is either unsubstituted or substituted with one or more substituent(s); wherein the individual ring size is 5-8 members; wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; wherein any aromatic or
30 tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is

optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, 5 sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

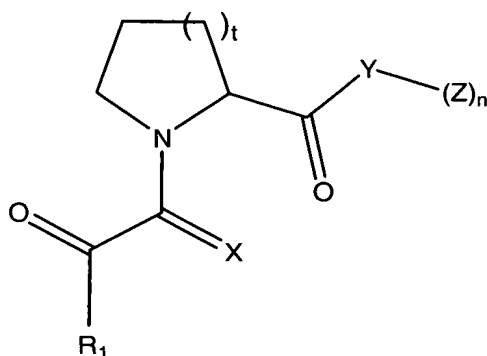
C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or 10 branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or 15 cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or 20 sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂; and

25 R₁ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group 30 consisting of Ar, C₃-C₈ cycloalkyl, amino, halo, halo-C₁-C₆-alkyl, hydroxy, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, carbonyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino,

C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, and sulfonyl, wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂..

5

95. A method as claimed in Claim 58 in which the sensorineurotrophic compound is a compound of formula XXV:



10

(XXV)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

R₁ is C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl or Ar₁, wherein said R₁ is unsubstituted or substituted with one or more substituents independently selected from the group consisting of C₁-C₆ alkyl, C₂-C₆ alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, and Ar₂;

20

Ar₁ and Ar₂ are independently selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, wherein said Ar₁ is unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl,

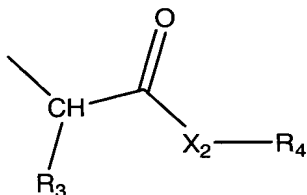
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C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

X is O, S, CH₂ or H₂;

Y is O or NR₂, wherein R₂ is a direct bond to a Z,
5 hydrogen or C₁-C₆ alkyl; and

each Z, independently, is C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said Z is substituted with one or more substituent(s) independently selected from the group
10 consisting of Ar₁, C₃-C₈ cycloalkyl, and C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with C₃-C₈ cycloalkyl; or Z is the fragment



15 wherein:

R₃ is C₁-C₉ straight or branched chain alkyl which is unsubstituted or substituted with C₃-C₈ cycloalkyl or Ar₁;

X₂ is O or NR₅, wherein R₅ is selected from the group consisting of hydrogen, C₁-C₆ straight or branched chain
20 alkyl, and C₂-C₆ straight or branched chain alkenyl;

R₄ is selected from the group consisting of phenyl, benzyl, C₁-C₅ straight or branched chain alkyl, C₂-C₅ straight or branched chain alkenyl, C₁-C₅ straight or branched chain alkyl substituted with phenyl, and C₂-C₅
25 straight or branched chain alkenyl substituted with phenyl;

n is 1 or 2, and;

t is 1, 2 or 3.

96. A method as claimed in Claim 95 in which the compound is selected from the group consisting of:

3-phenyl-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;

5 3-phenyl-1-prop-2-(*E*)-enyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;

3-(3,4,5-trimethoxyphenyl)-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidine-carboxylate;

10 3-(3,4,5-trimethoxyphenyl)-1-prop-2-(*E*)-enyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;

3-(4,5-dichlorophenyl)-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;

3-(4,5-dichlorophenyl)-1-prop-2-(*E*)-enyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidine-carboxylate;

15 3-(4,5-methylenedioxyphenyl)-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidine-carboxylate;

3-(4,5-methylenedioxyphenyl)-1-prop-2-(*E*)-enyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;

20 3-cyclohexyl-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;

3-cyclohexyl-1-prop-2-(*E*)-enyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;

25 (1*R*)-1,3-diphenyl-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;

(1*R*)-1,3-diphenyl-1-prop-2-(*E*)-enyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidine-carboxylate;

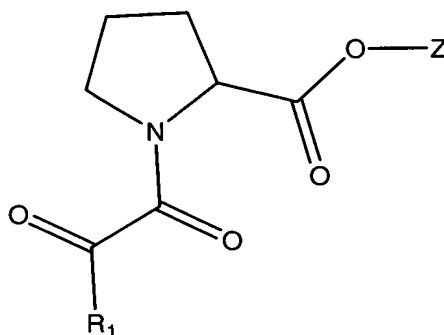
(1*R*)-1-cyclohexyl-3-phenyl-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidine-carboxylate;

30 (1*R*)-1-cyclohexyl-3-phenyl-1-prop-2-(*E*)-enyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;

- (1R)-1-(4,5-dichlorophenyl)-3-phenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidine-carboxylate;
- 3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-cyclohexyl)ethyl-2-pyrrolidinecarboxylate;
- 5 3-phenyl-1-propyl (2S)-1-(1,2-dioxo-4-cyclohexyl)butyl-2-pyrrolidinecarboxylate;
- 3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-furanyl])ethyl-2-pyrrolidinecarboxylate;
- 10 3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thienyl])ethyl-2-pyrrolidinecarboxylate;
- 3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thiazolyl])ethyl-2-pyrrolidinecarboxylate;
- 3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-phenyl)ethyl-
- 15 2-pyrrolidinecarboxylate;
- 1,7-diphenyl-4-heptyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 3-phenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxo-4-hydroxybutyl)-2-pyrrolidinecarboxylate;
- 20 3-phenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxamide;
- 1-[1-(3,3-dimethyl-1,2-dioxopentyl)-L-proline]-L-phenylalanine ethyl ester;
- 1-[1-(3,3-dimethyl-1,2-dioxopentyl)-L-proline]-L-
- 25 leucine ethyl ester;
- 1-[1-(3,3-dimethyl-1,2-dioxopentyl)-L-proline]-L-phenylglycine ethyl ester;
- 1-[1-(3,3-dimethyl-1,2-dioxopentyl)-L-proline]-L-phenylalanine phenyl ester;
- 30 1-[1-(3,3-dimethyl-1,2-dioxopentyl)-L-proline]-L-phenylalanine benzyl ester;
- 1-[1-(3,3-dimethyl-1,2-dioxopentyl)-L-proline]-L-isoleucine ethyl ester; and

pharmaceutically acceptable salts, esters, and solvates thereof.

97. A method as claimed in Claim 95 in which the
5 sensorineurotrophic compound is a compound of formula XXVI:



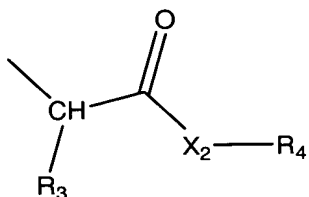
(XXVI)

or a pharmaceutically acceptable salt, ester, or solvate
10 thereof, wherein:

R₁ is C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl or Ar₁, wherein said R₁ is unsubstituted or substituted with one or more substituents
15 independently selected from the group consisting of C₁-C₆ alkyl, C₂-C₆ alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, and Ar₂;

Ar₁ and Ar₂ are independently selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, wherein said Ar₁ is unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro,
25 trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

Z is C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said Z is substituted with one or more substituent(s) independently selected from the group consisting of Ar₁, C₃-C₈ cycloalkyl, and C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with C₃-C₈ cycloalkyl; or Z is the fragment



wherein:

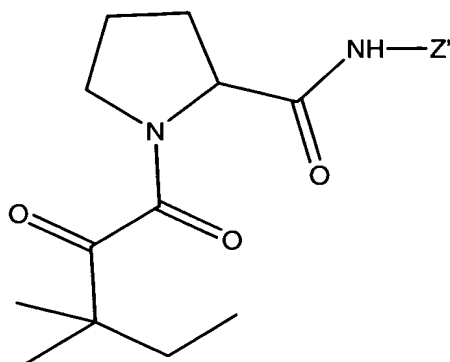
10 R₃ is C₁-C₉ straight or branched chain alkyl which is unsubstituted or substituted with C₃-C₈ cycloalkyl or Ar₁;

 X₂ is O or NR₅, wherein R₅ is selected from the group consisting of hydrogen, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl; and

15 R₄ is selected from the group consisting of phenyl, benzyl, C₁-C₅ straight or branched chain alkyl, C₂-C₅ straight or branched chain alkenyl, C₁-C₅ straight or branched chain alkyl substituted with phenyl, and C₂-C₅ straight or branched chain alkenyl substituted with phenyl.

98. A method as claimed in Claim 58 in which the sensorineurotrophic agent may be a compound of formula

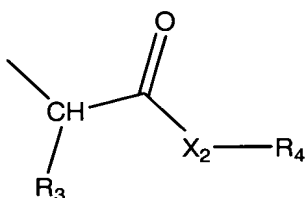
25 XXVII:



(XXVII)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

5 Z' is the fragment



wherein:

R₃ is C₁-C₉ straight or branched chain alkyl or unsubstituted Ar₁, wherein said alkyl is unsubstituted or substituted with C₃-C₈ cycloalkyl or Ar₁;

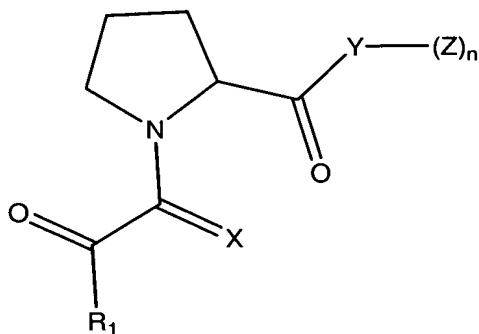
X₂ is O or NR₅, wherein R₅ is selected from the group consisting of hydrogen, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl;

R₄ is selected from the group consisting of phenyl, benzyl, C₁-C₅ straight or branched chain alkyl, C₂-C₅ straight or branched chain alkenyl, C₁-C₅ straight or branched chain alkyl substituted with phenyl, and C₂-C₅ straight or branched chain alkenyl substituted with phenyl; and

Ar₁ is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, wherein said Ar₁ is unsubstituted or substituted with one or more substituent(s) independently

selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino.

99. A method as claimed in Claim 95 in which the sensorineurotrophic agent may also be a compound of formula XXVIII:



(XXVIII)

wherein:

R₁ is C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₆ cycloalkyl or Ar₁, wherein said alkyl or alkenyl is unsubstituted or substituted with C₃-C₆ cycloalkyl or Ar₂;

Ar₁ and Ar₂ are independently selected from the group consisting of 2-furyl, 2-thienyl, and phenyl;

X is selected from the group consisting of oxygen and sulfur;

Y is oxygen or NR₂, wherein R₂ is a direct bond to a Z, hydrogen or C₁-C₆ alkyl;

each Z, independently, is hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said Z is substituted with one or more substituent(s) independently selected from the group consisting of 2-furyl, 2-thienyl, C₃-C₆ cycloalkyl, pyridyl, and phenyl, each having one or more

substituent(s) independently selected from the group consisting of hydrogen and C₁-C₄ alkoxy; and n is 1 or 2.

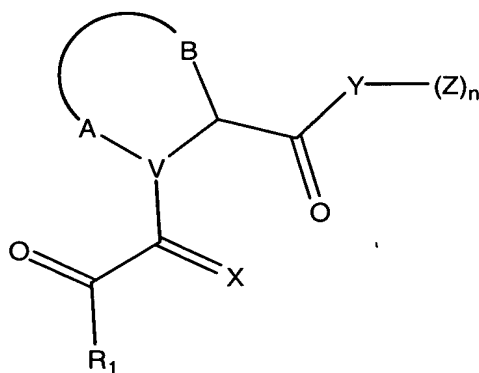
- 5 100. A method as claimed in Claim 99 in which the compound is selected from the group consisting of:
- 3-(2,5-dimethoxyphenyl)-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 3-(2,5-dimethoxyphenyl)-1-prop-2-(*E*)-enyl (2*S*)-1-
10 (3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidine-carboxylate;
- 2-(3,4,5-trimethoxyphenyl)-1-ethyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 3-(3-pyridyl)-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 15 3-(2-pyridyl)-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 3-(4-pyridyl)-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 3-phenyl-1-propyl (2*S*)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate;
- 20 3-phenyl-1-propyl (2*S*)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate;
- 3-(3-pyridyl)-1-propyl (2*S*)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidine-carboxylate;
- 25 3-(3-pyridyl)-1-propyl (2*S*)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate;
- 3,3-diphenyl-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 3-(3-pyridyl)-1-propyl (2*S*)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate;
- 30 3-(3-pyridyl)-1-propyl (2*S*)-N-([2-thienyl]glyoxyl)pyrrolidinecarboxylate;
- 3,3-diphenyl-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxobutyl)-2-pyrrolidinecarboxylate;

3,3-diphenyl-1-propyl (2S)-1-cyclohexylglyoxyl-
2-pyrrolidinecarboxylate;

3,3-diphenyl-1-propyl (2S)-1-(2-thienyl)glyoxyl-2-
pyrrolidinecarboxylate; and

5 pharmaceutically acceptable salts, esters, and
solvates thereof.

101. A method as claimed in Claim 58 in which the
sensorineurotrophic compound is a compound of formula
10 XXIX:



(XXIX)

or a pharmaceutically acceptable salt, ester, or solvate
thereof, wherein:

15 V is CH, N, or S;

A and B, together with V and the carbon atom to
which they are respectively attached, form a 5-7 membered
saturated or unsaturated heterocyclic ring containing, in
addition to V, one or more heteroatom(s) independently
20 selected from the group consisting of O, S, SO, SO₂, N,
NH, and NR;

R is either C₁-C₉ straight or branched chain alkyl,
C₂-C₉ straight or branched chain alkenyl, C₃-C₉
cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, wherein R is
25 either unsubstituted or substituted with one or more
substituent(s) independently selected from the group
consisting of halo, halo-(C₁-C₆)-alkyl, carbonyl,

carboxy, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, thio-(C₁-C₆)-alkyl, alkylthio, sulfhydryl, amino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, aminocarboxyl, and Ar₂;

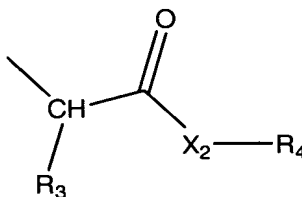
R₁ is C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl or Ar₁, wherein said R₁ is unsubstituted or substituted with one or more substituents independently selected from the group consisting of C₁-C₆ alkyl, C₂-C₆ alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, and Ar₂;

Ar₁ and Ar₂ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s); wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S;

X is O, S, CH₂ or H₂;

Y is O or NR₂, wherein R₂ is a direct bond to a Z, hydrogen or C₁-C₆ alkyl; and

each Z, independently, is C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said Z is substituted with one or more substituent(s) independently selected from the group consisting of Ar₁, C₃-C₈ cycloalkyl, and C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with C₃-C₈ cycloalkyl; or Z is the fragment



wherein:

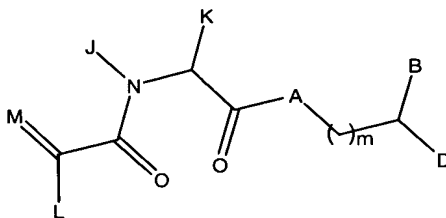
R₃ is C₁-C₉ straight or branched chain alkyl which is unsubstituted or substituted with C₃-C₈ cycloalkyl or Ar₁;

5 X₂ is O or NR₅, wherein R₅ is selected from the group consisting of hydrogen, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl; and

R₄ is selected from the group consisting of phenyl,
10 benzyl, C₁-C₅ straight or branched chain alkyl, C₂-C₅ straight or branched chain alkenyl, C₁-C₅ straight or branched chain alkyl substituted with phenyl, and C₂-C₅ straight or branched chain alkenyl substituted with phenyl; and,
15 n is 1 or 2.

102. A method as claimed in Claim 58 in which the sensorineurotrophic compound is a compound of formula (LV):

20



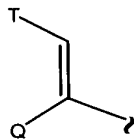
(LV)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

25 m is 0-3;

A is CH₂, O, NH, or N-(C₁-C₄ alkyl);

B and D are independently hydrogen, Ar, C₅-C₇ cycloalkyl substituted C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, C₅-C₇ cycloalkenyl substituted C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, or Ar substituted C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, wherein in each case, one or two carbon atom(s) of said alkyl or alkenyl may be substituted with one or two heteroatom(s) independently selected from the group consisting of oxygen, sulfur, SO, and SO₂ in chemically reasonable substitution patterns, or



15

wherein Q is hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; and

20 T is Ar or C₅-C₇ cycloalkyl substituted at positions 3 and 4 with substituents independently selected from the group consisting of hydrogen, hydroxy, O-(C₁-C₄ alkyl), O-(C₂-C₄ alkenyl), and carbonyl;

25 Ar is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, monocyclic and bicyclic heterocyclic ring systems with individual ring sizes being 5 or 6 which contain in

30 either or both rings a total of 1-4 heteroatom(s) independently selected from the group consisting of oxygen, nitrogen and sulfur; wherein Ar contains 1-3

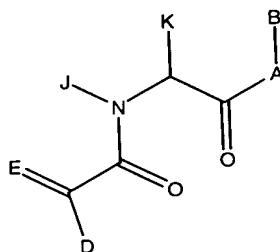
substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, hydroxymethyl, nitro, CF₃, trifluoromethoxy, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, O-
5 (C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄ straight or branched chain alkenyl), O-benzyl, O-phenyl, amino, 1,2-methylenedioxy, carbonyl, and phenyl;

L is either hydrogen or U; M is either oxygen or CH-U, provided that if L is hydrogen, then M is CH-U, or if
10 M is oxygen then L is U;

U is hydrogen, O-(C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄ straight or branched chain alkenyl), C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₅-C₇ cycloalkyl, C₅-C₇
15 cycloalkenyl substituted with C₁-C₄ straight or branched chain alkyl or C₂-C₄ straight or branched chain alkenyl, (C₁-C₄ alkyl or C₂-C₄ alkenyl)-Ar, or Ar;

J is hydrogen, C₁ or C₂ alkyl, or benzyl; K is C₁-C₄ straight or branched chain alkyl, benzyl or
20 cyclohexylmethyl; or J and K are taken together to form a 5-7 membered heterocyclic ring which is substituted with oxygen, sulfur, SO, or SO₂.

103. A method as claimed in Claim 58 in which the
25 sensorineurotrophic compound is a compound of formula (LVI):

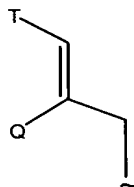


(LVI)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

A is O, NH, or N-(C₁-C₄ alkyl);

5 B is hydrogen, CHL-Ar, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl, Ar substituted C₁-C₆ alkyl or C₂-C₆ alkenyl, or



10

wherein L and Q are independently hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; and
15 T is Ar or C₅-C₇ cyclohexyl substituted at positions 3 and 4 with substituents independently selected from the group consisting of hydrogen, hydroxy, O-(C₁-C₄ alkyl), O-(C₂-C₄ alkenyl), and carbonyl;
20

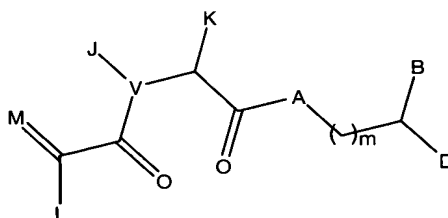
Ar is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl having 1-3 substituent(s) independently selected from the group
25 consisting of hydrogen, halo, hydroxy, nitro, CF₃, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, O-(C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄ straight or branched chain alkenyl), O-benzyl, O-phenyl, amino, and phenyl.

D is hydrogen or U; E is oxygen or CH-U, provided that if D is hydrogen, then E is CH-U, or if E is oxygen, then D is U;

U is hydrogen, O-(C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄ straight or branched chain alkenyl), C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₅-C₇-cycloalkyl, C₅-C₇ cycloalkenyl substituted with C₁-C₄ straight or branched chain alkyl or C₂-C₄ straight or branched chain alkenyl, 2-indolyl, 3-indolyl, (C₁-C₄ alkyl or C₂-C₄ alkenyl)-Ar, or Ar;

J is hydrogen, C₁ or C₂ alkyl, or benzyl; K is C₁-C₄ straight or branched chain alkyl, benzyl or cyclohexylethyl; or J and K are taken together to form a 5-7 membered heterocyclic ring which is substituted with oxygen, sulfur, SO, or SO₂.

104. A method as claimed in Claim 58 in which the
sensorineurotrophic compound is a compound of formula
20 LVIII:



(LVIII)

or a pharmaceutically acceptable salt, ester, or solvate
25 thereof, wherein:

V is CH, N, or S;

J and K, taken together with V and the carbon atom to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing, in addition to V, one or more heteroatom(s)

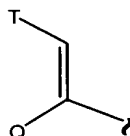
selected from the group consisting of O, S, SO, SO₂, N, NH, and NR;

R is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₉ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, wherein R is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, halo(C₁-C₆)-alkyl, carbonyl, carboxy, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, thio-(C₁-C₆)-alkyl, (C₁-C₆)-alkylthio, sulfhydryl, amino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, aminocarboxyl, and Ar₂;

Ar₁ and Ar₂ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring; wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S;

A is CH₂, O, NH, or N-(C₁-C₄ alkyl);

B and D are independently hydrogen, Ar, C₅-C₇ cycloalkyl substituted C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, C₅-C₇ cycloalkenyl substituted C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, or Ar substituted C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, wherein in each case, one or two carbon atom(s) of said alkyl or alkenyl may be substituted with one or two heteroatom(s) independently selected from the group consisting of oxygen, sulfur, SO, and SO₂ in chemically reasonable substitution patterns, or



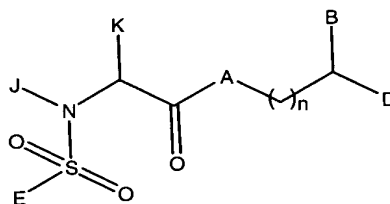
- wherein Q is hydrogen, C₁-C₆ straight or
5 branched chain alkyl, or C₂-C₆ straight or
branched chain alkenyl; and
T is Ar or C₅-C₇ cycloalkyl substituted at
positions 3 and 4 with substituents
independently selected from the group
10 consisting of hydrogen, hydroxy, O-(C₁-C₄
alkyl), O-(C₂-C₄ alkenyl), and carbonyl;
Ar is selected from the group consisting of 1-
naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 3-
thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl,
15 monocyclic and bicyclic heterocyclic ring systems with
individual ring sizes being 5 or 6 which contain in
either or both rings a total of 1-4 heteroatom(s)
independently selected from the group consisting of
oxygen, nitrogen and sulfur; wherein Ar contains 1-3
20 substituent(s) independently selected from the group
consisting of hydrogen, halo, hydroxy, hydroxymethyl,
nitro, CF₃, trifluoromethoxy, C₁-C₆ straight or branched
chain alkyl, C₂-C₆ straight or branched chain alkenyl, O-
(C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄
25 straight or branched chain alkenyl), O-benzyl, O-phenyl,
amino, 1,2-methylenedioxy, carbonyl, and phenyl;
L is either hydrogen or U; M is either oxygen or CH-
U, provided that if L is hydrogen, then M is CH-U, or if
M is oxygen then L is U;
30 U is hydrogen, O-(C₁-C₄ straight or branched chain
alkyl), O-(C₂-C₄ straight or branched chain alkenyl), C₁-
C₆ straight or branched chain alkyl, C₂-C₆ straight or

branched chain alkenyl, C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl substituted with C₁-C₄ straight or branched chain alkyl or C₂-C₄ straight or branched chain alkenyl, (C₁-C₄ alkyl or C₂-C₄ alkenyl)-Ar, or Ar;

- 5 J is hydrogen, C₁ or C₂ alkyl, or benzyl; K is C₁-C₄ straight or branched chain alkyl, benzyl or cyclohexylmethyl; or J and K are taken together to form a 5-7 membered heterocyclic ring which is substituted with oxygen, sulfur, SO, or SO₂.

10

105. A method as claimed in Claim 58 in which the sensorineurotrophic compound is a compound of the formula (LIX):



15

(LIX)

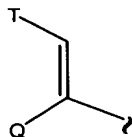
or a pharmaceutically acceptable salt, ester or solvate thereof, wherein:

A is CH₂, O, NH, or N-(C₁-C₄ alkyl);

20

B and D are independently Ar, hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is unsubstituted or substituted with C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl or Ar, and wherein one or two carbon atom(s) of said alkyl or alkenyl may be substituted with one or two heteroatom(s) independently selected from the group consisting of O, S, SO, and SO₂ in chemically reasonable substitution patterns, or

25



wherein Q is hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; and

5 T is Ar or C₅-C₇ cycloalkyl substituted at positions 3 and 4 with one or more substituent(s) independently selected from the group consisting of hydrogen, hydroxy, O-(C₁-C₄ alkyl), O-(C₂-C₄ alkenyl), and carbonyl;

10 provided that both B and D are not hydrogen;

Ar is selected from the group consisting of phenyl, 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, monocyclic and bicyclic heterocyclic ring systems with individual ring
15 sizes being 5 or 6 which contain in either or both rings a total of 1-4 heteroatoms independently selected from the group consisting of O, N, and S; wherein Ar contains 1-3 substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro,
20 trifluoromethyl, trifluoromethoxy, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, O-(C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄ straight or branched chain alkenyl), O-benzyl, O-phenyl, 1,2-methylenedioxy, amino, carboxyl, and phenyl;

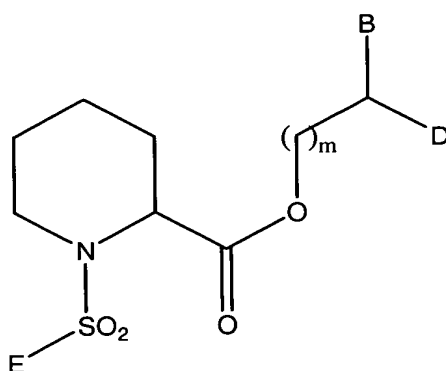
25 E is C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl substituted with C₁-C₄ straight or branched chain alkyl or C₂-C₄ straight or branched chain alkenyl, (C₂-C₄ alkyl or C₂-C₄ alkenyl)-Ar, or Ar;

30 J is hydrogen, C₁ or C₂ alkyl, or benzyl; K is C₁-C₄ straight or branched chain alkyl, benzyl, or cyclohexylmethyl; or J and K are taken together to form a

5-7 membered heterocyclic ring which is substituted with
O, S, SO, or SO₂;

n is 0 to 3.

- 5 106. A method as claimed in Claim 58 in which the
sensorineurotrophic compound is a compound of Formula
LXI:

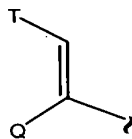


(LXI)

10

or a pharmaceutically acceptable salt, ester or solvate
thereof, wherein:

- B and D are independently Ar, hydrogen, C₁-C₆
straight or branched chain alkyl, or C₂-C₆ straight or
15 branched chain alkenyl, wherein said alkyl or alkenyl is
unsubstituted or substituted with C₅-C₇ cycloalkyl, C₅-C₇
cycloalkenyl or Ar, and wherein one or two carbon atom(s)
of said alkyl or alkenyl may be substituted with one or
two heteroatom(s) independently selected from the group
20 consisting of O, S, SO, and SO₂ in chemically reasonable
substitution patterns, or



wherein Q is hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; and

5 T is Ar or C₅-C₇ cycloalkyl substituted at positions 3 and 4 with one or more substituent(s) independently selected from the group consisting of hydrogen, hydroxy, O-(C₁-C₄ alkyl), O-(C₂-C₄ alkenyl), and carbonyl;

provided that both B and D are not hydrogen;

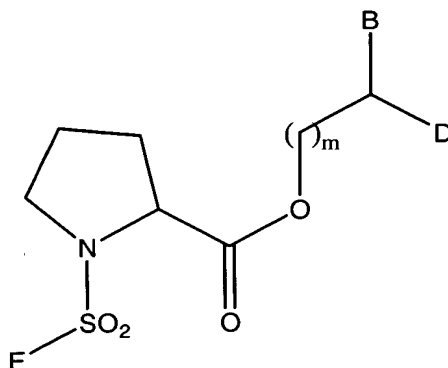
10 Ar is selected from the group consisting of phenyl, 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, monocyclic and bicyclic heterocyclic ring systems with individual ring sizes being 5 or 6 which contain in either or both rings
15 a total of 1-4 heteroatoms independently selected from the group consisting of O, N, and S; wherein Ar contains 1-3 substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, trifluoromethoxy, C₁-C₆ straight or
20 branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, O-(C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄ straight or branched chain alkenyl), O-benzyl, O-phenyl, 1,2-methylenedioxy, amino, carboxyl, and phenyl;

E is C₁-C₆ straight or branched chain alkyl, C₂-C₆
25 straight or branched chain alkenyl, C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl substituted with C₁-C₄ straight or branched chain alkyl or C₂-C₄ straight or branched chain alkenyl, (C₂-C₄ alkyl or C₂-C₄ alkenyl)-Ar, or Ar; and

m is 0 to 3.

30

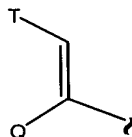
107. A method as claimed in Claim 58 in which the sensorineurotrophic compound is a compound of Formula (LXII):



(LXII)

or a pharmaceutically acceptable salt thereof, wherein:

B and D are independently Ar, hydrogen, C₁-C₆
 5 straight or branched chain alkyl, or C₂-C₆ straight or
 branched chain alkenyl, wherein said alkyl or alkenyl is
 unsubstituted or substituted with C₅-C₇ cycloalkyl, C₅-C₇
 cycloalkenyl, or Ar, and wherein one or two carbon
 atom(s) of said alkyl or alkenyl may be substituted with
 10 one or two heteroatom(s) independently selected from the
 group consisting of O, S, SO, and SO₂ in chemically
 reasonable substitution patterns, or



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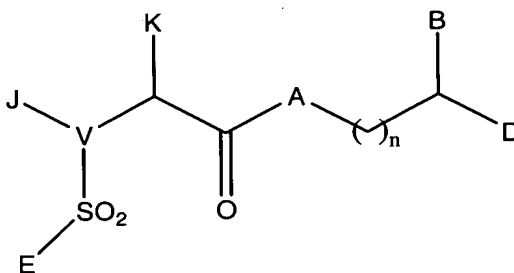
wherein Q is hydrogen, C₁-C₆ straight or
 branched chain alkyl, or C₂-C₆ straight or
 branched chain alkenyl; and

T is Ar or C₅-C₇ cycloalkyl substituted at
 20 positions 3 and 4 with one or more
 substituent(s) independently selected from the
 group consisting of hydrogen, hydroxy, O-(C₁-C₄
 alkyl), O-(C₂-C₄ alkenyl), and carbonyl;

provided that both B and D are not hydrogen;

Ar is selected from the group consisting of phenyl, 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, monocyclic and bicyclic heterocyclic ring systems with individual ring sizes being 5 or 6 which contain in either or both rings a total of 1-4 heteroatoms independently selected from the group consisting of O, N, and S; wherein Ar contains 1-3 substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, trifluoromethoxy, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, O-(C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄ straight or branched chain alkenyl), O-benzyl, O-phenyl, 1,2-methylenedioxy, amino, carboxyl, and phenyl; E is C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl substituted with C₁-C₄ straight or branched chain alkyl or C₂-C₄ straight or branched chain alkenyl, (C₂-C₄ alkyl or C₂-C₄ alkenyl)-Ar, or Ar; and m is 0 to 3.

108. A method as claimed in Claim 58 in which the sensorineurotrophic compound is a compound of Formula LXIII:



(LXIII)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

V is CH, N, or S;

J and K, taken together with V and the carbon atom to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing, in addition to V, one or more heteroatom(s) selected from the group consisting of O, S, SO, SO₂, N, NH, and NR;

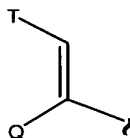
R is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₉ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, wherein R is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, halo(C₁-C₆)-alkyl, carbonyl, carboxy, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, thio-(C₁-C₆)-alkyl, (C₁-C₆)-alkylthio, sulfhydryl, amino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, aminocarboxyl, and Ar₂;

Ar₁ and Ar₂ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring; wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S;

A is CH₂, O, NH, or N-(C₁-C₄ alkyl);

B and D are independently Ar, hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is unsubstituted or substituted with C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl or Ar, and wherein one or two carbon atom(s) of said alkyl or alkenyl may be substituted with one or two heteroatom(s) independently selected from the group

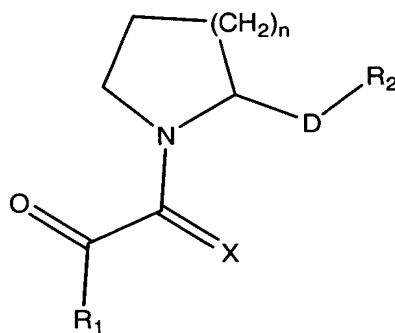
consisting of O, S, SO, and SO₂ in chemically reasonable substitution patterns, or



- 5 wherein Q is hydrogen, C₁-C₆ straight or
 branched chain alkyl, or C₂-C₆ straight or
 branched chain alkenyl; and
 T is Ar or C₅-C₇ cycloalkyl substituted at
 positions 3 and 4 with one or more
10 substituent(s) independently selected from the
 group consisting of hydrogen, hydroxy, O-(C₁-C₄
 alkyl), O-(C₂-C₄ alkenyl), and carbonyl;
 provided that both B and D are not hydrogen;
 Ar is selected from the group consisting of phenyl,
15 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 3-
 thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, monocyclic and
 bicyclic heterocyclic ring systems with individual ring
 sizes being 5 or 6 which contain in either or both rings
 a total of 1-4 heteroatoms independently selected from
20 the group consisting of O, N, and S; wherein Ar contains
 1-3 substituent(s) independently selected from the group
 consisting of hydrogen, halo, hydroxy, nitro,
 trifluoromethyl, trifluoromethoxy, C₁-C₆ straight or
 branched chain alkyl, C₂-C₆ straight or branched chain
25 alkenyl, O-(C₁-C₄ straight or branched chain alkyl), O-
 (C₂-C₄ straight or branched chain alkenyl), O-benzyl, O-
 phenyl, 1,2-methylenedioxy, amino, carboxyl, and phenyl;
 E is C₁-C₆ straight or branched chain alkyl, C₂-C₆
 straight or branched chain alkenyl, C₅-C₇ cycloalkyl, C₅-
30 C₇ cycloalkenyl substituted with C₁-C₄ straight or
 branched chain alkyl or C₂-C₄ straight or branched chain
 alkenyl, (C₂-C₄ alkyl or C₂-C₄ alkenyl)-Ar, or Ar;

J is hydrogen, C₁ or C₂ alkyl, or benzyl; K is C₁-C₄ straight or branched chain alkyl, benzyl, or cyclohexylmethyl; or J and K are taken together to form a 5-7 membered heterocyclic ring which is substituted with
5 O, S, SO, or SO₂;
n is 0 to 3.

109. A method as claimed in Claim 58 in which the sensorineurotrophic compound is a compound of formula
10 (LXIV):



(LXIV)

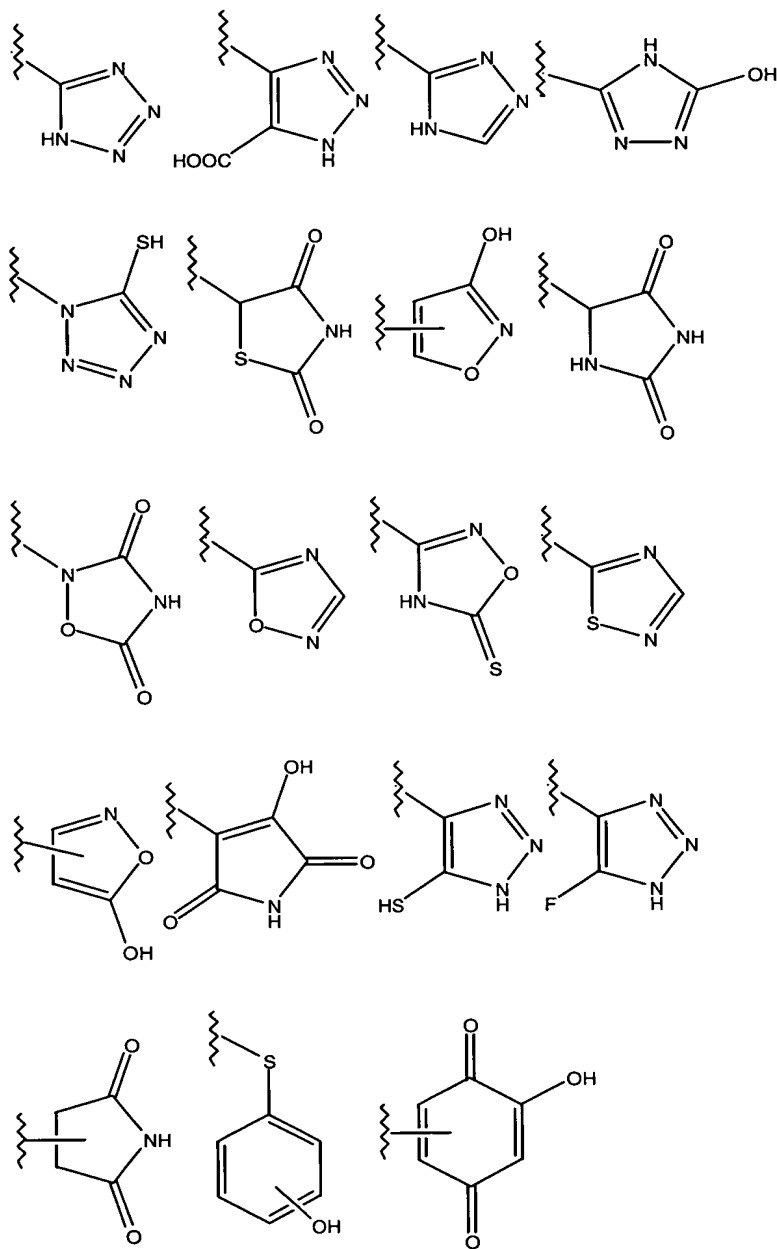
in which:

- n is 1-3;
15 X is either O or S;
 R_1 is selected from the group consisting of C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, aryl, heteroaryl, carbocycle, or heterocycle;
20 D is a bond, or a C₁-C₁₀ straight or branched chain alkyl, C₂-C₁₀ alkenyl or C₂-C₁₀ alkynyl; and
 R_2 is a carboxylic acid or a carboxylic acid isostere; or a pharmaceutically acceptable salt, ester, or solvate thereof.

25

110. A method as claimed in Claim 109 in which.

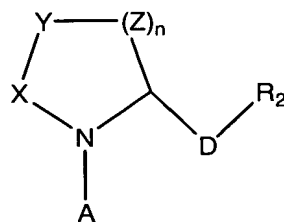
R_2 is selected from the group:



- 5 -COOH, -SO₃H, -SO₂HNR³, -PO₂(R³)₂, -CN, -PO₃(R³)₂, -OR³, -SR³, -NHCOR³, -N(R³)₂, -CON(R³)₂, -CONH(O)R³, -CONHNHSO₂R³, -COHNSO₂R³, and -CONR³CN wherein R³ is hydrogen, hydroxy, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, C₁-C₆-alkylaryloxy, aryloxy, aryl-C₁-C₆-alkyloxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, C₁-C₆-

alkylthio, sulfonyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl or alkynyl, aryl, heteroaryl, carbocycle, heterocycle, and CO₂R⁴ where R⁴ is hydrogen or C₁-C₉ straight or branched chain alkyl or alkenyl.

111. A method as claimed in Claim 58 in which the sensorineurotrophic compound is a compound of formula (LXV):



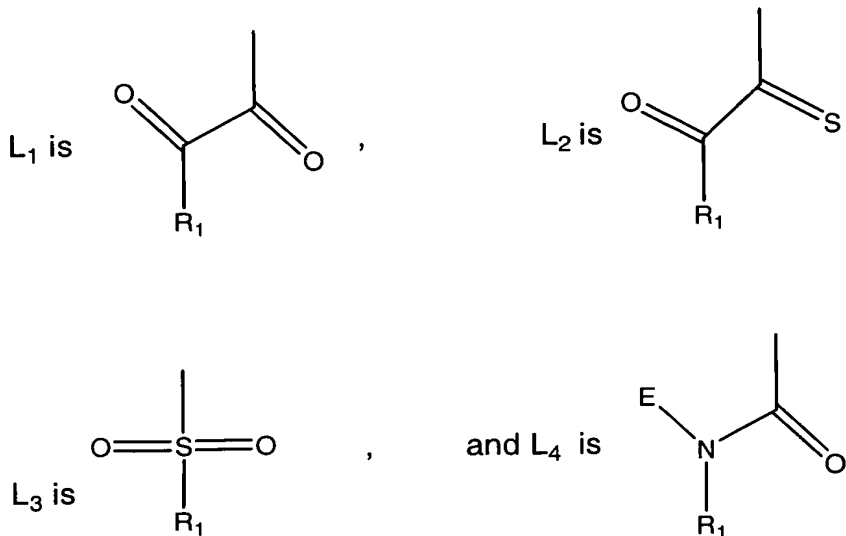
(LXV)

in which

X, Y, and Z are independently selected from the group consisting of C, O, S, or N, provided that X, Y, and Z are not all C;

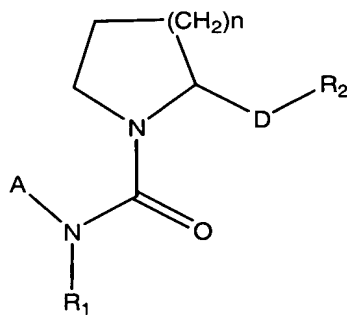
n is 1-3;

A is selected from the group consisting of L₁, L₂, L₃, or L₄, in which



and R_1 and E , independently, are selected from the group consisting of hydrogen, C_1 - C_9 straight or branched chain alkyl, C_2 - C_9 straight or branched chain alkenyl, aryl, heteroaryl, carbocycle, and heterocycle;
 R_2 is carboxylic acid or a carboxylic acid isostere; wherein said alkyl, alkenyl, alkynyl, aryl, heteroaryl, carbocycle, heterocycle, or carboxylic acid isostere is optionally substituted with one or more substituents
 10 selected from R^3 , where
 R^3 is hydrogen, hydroxy, halo, halo(C_1 - C_6)-alkyl, thiocarbonyl, (C_1 - C_6)-alkoxy, (C_2 - C_6)-alkenoxy, (C_1 - C_6)-alkylaryloxy, aryloxy, aryl-(C_1 - C_6)-alkyloxy, cyano, nitro, imino, (C_1 - C_6)-alkylamino, amino-(C_1 - C_6)-alkyl,
 15 sulfhydryl, thio-(C_1 - C_6)-alkyl, (C_1 - C_6)-alkylthio, sulfonyl, C_1 - C_6 straight or branched chain alkyl, C_2 - C_6 straight or branched chain alkenyl or alkynyl, aryl, heteroaryl, carbocycle, heterocycle, or CO_2R^4 where R^4 is hydrogen or C_1 - C_9 straight or branched chain alkyl or
 20 alkenyl;
 or a pharmaceutically acceptable salt, ester, or solvate thereof.

112. A method as claimed in Claim 58 in which the
 25 sensorineurotrophic compound is a compound of formula (LXVI):



(LXVI)

in which:

n is 1-3;

R₁ and A are independently selected from the group consisting of hydrogen, C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, aryl, heteroaryl, carbocycle, and heterocycle;

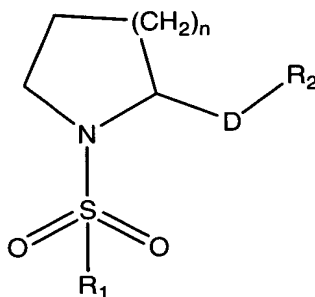
D is a bond, or a C₁-C₁₀ straight or branched chain alkyl, C₂-C₁₀ alkenyl or C₂-C₁₀ alkynyl;

R₂ is carboxylic acid or a carboxylic acid isostere; wherein said alkyl, alkenyl, alkynyl, aryl, heteroaryl, carbocycle, heterocycle, or carboxylic acid isostere is optionally substituted with one or more substituents selected from R³, where

R³ is hydrogen, hydroxy, halo, halo(C₁-C₆)-alkyl, thiocarbonyl, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenoxy, (C₁-C₆)-alkylaryloxy, aryloxy, aryl-(C₁-C₆)-alkyloxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)-alkyl, (C₁-C₆)-alkylthio, sulfonyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl or alkynyl, aryl, heteroaryl, carbocycle, heterocycle, and CO₂R⁴ where R⁴ is hydrogen or C₁-C₉ straight or branched chain alkyl or alkenyl;

or a pharmaceutically acceptable salt, ester, or solvate thereof.

113. A method as claimed in Claim 58 in which the sensorineurotrophic compound is a compound of formula (LXVII):



(LXVII)

in which:

n is 1-3;

5 R₁ is selected from the group consisting of hydrogen, C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, aryl, heteroaryl, carbocycle, or heterocycle;

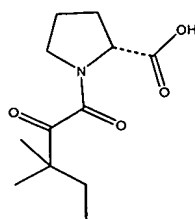
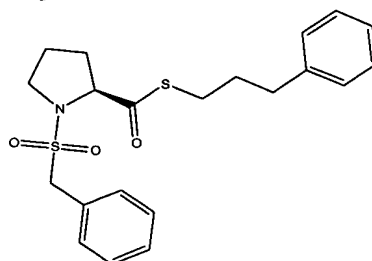
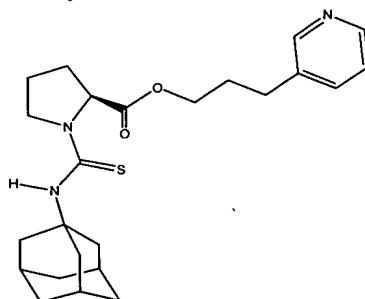
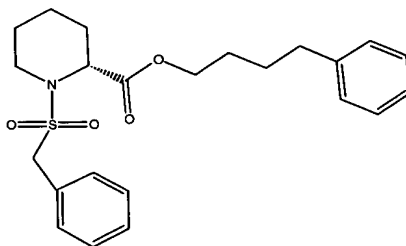
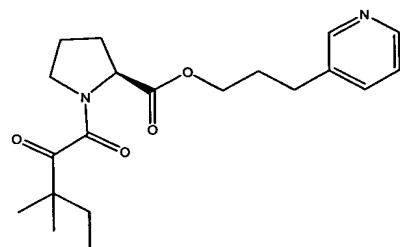
10 D is a bond, or a C₁-C₁₀ straight or branched chain alkyl, C₂-C₁₀ alkenyl or C₂-C₁₀ alkynyl;

R₂ is a carboxylic acid or a carboxylic acid isostere;

wherein said alkyl, alkenyl, alkynyl, aryl, heteroaryl, carbocycle, heterocycle, or carboxylic acid isostere is
15 optionally substituted with one or more substituents selected from R³, where

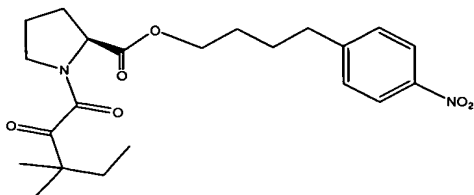
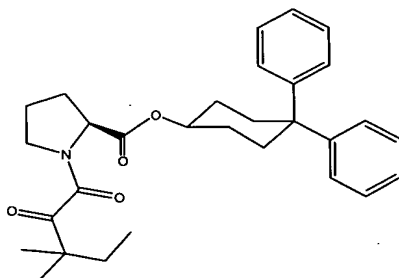
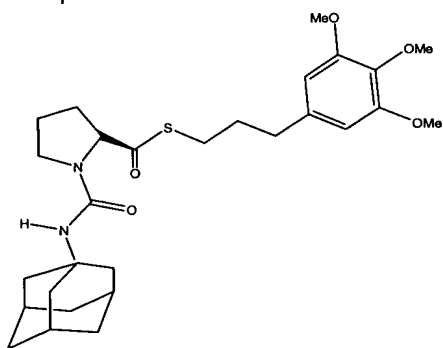
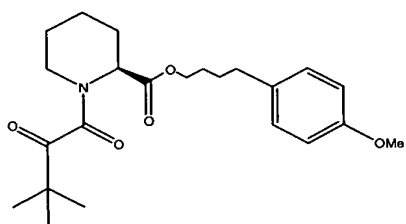
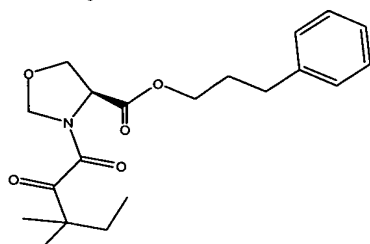
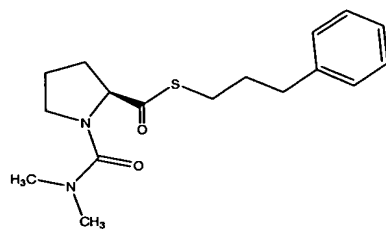
R³ is hydrogen, hydroxy, halo, , halo-(C₁-C₆)-alkoxy, thiocarbonyl, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenyloxy, (C₁-C₆)-alkylaryloxy, aryloxy, aryl-(C₁-C₆)-alkyloxy, cyano,
20 nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)alkyl, (C₁-C₆)-alkylthio, sulfonyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl or alkynyl, aryl, heteroaryl, carbocycle, heterocycle, or CO₂R⁴ where R⁴ is
25 hydrogen or C₁-C₉ straight or branched chain alkyl or alkenyl;
or a pharmaceutically acceptable salt, ester or solvate thereof.

114. A method for the prevention or treatment of injury
or degeneration of inner ear sensory cells which
comprises administering to a warm-blooded animal a
5 compound selected from the group comprising:



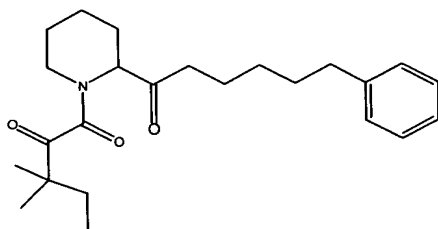
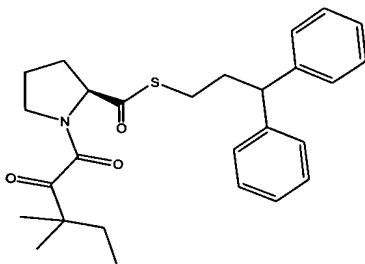
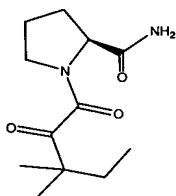
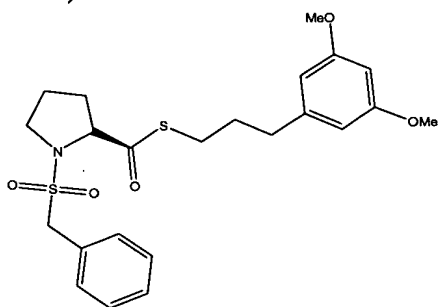
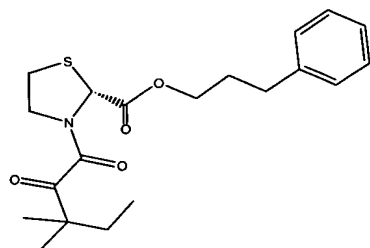
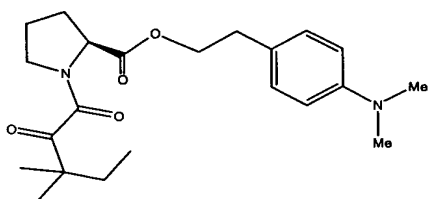
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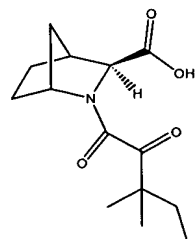
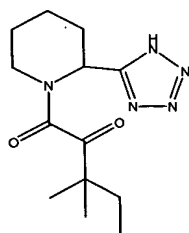
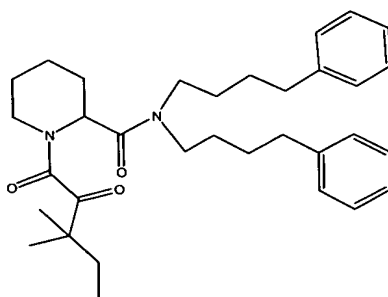
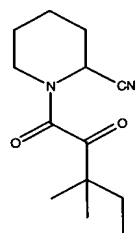
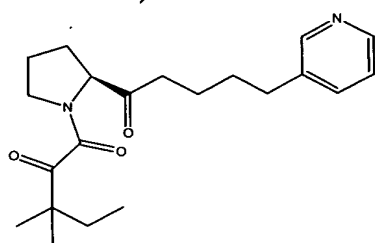
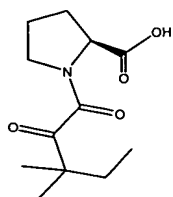
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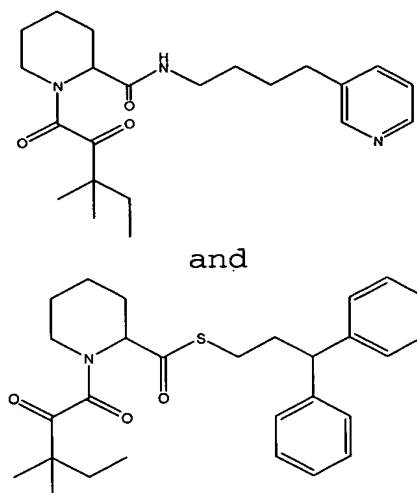
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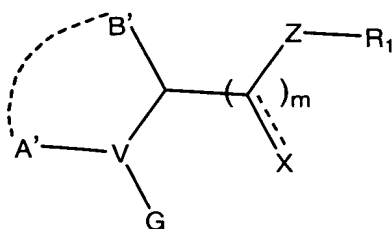
-519-





or a pharmaceutically acceptable salt, ester or solvate thereof.

- 5 115. A method for the prevention or treatment of a vestibular disorder which comprises administering to a warm-blooded animal a sensorineurotrophic compound of the formula (I'):



(I')

wherein

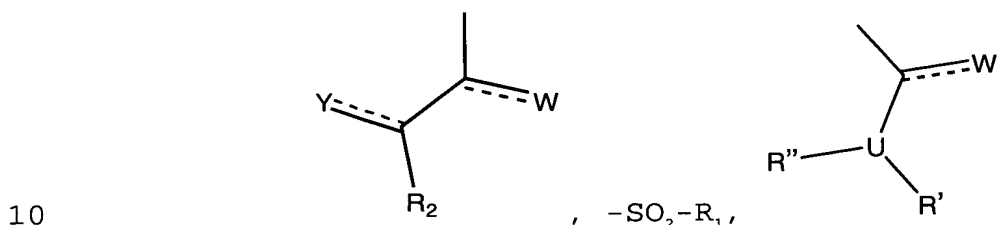
15 A' is hydrogen, C₁ or C₂ alkyl, or benzyl;

B' is C₁-C₄ straight or branched chain alkyl, benzyl or cyclohexylmethyl; or,

A' and B', taken together with the atoms to which they are attached, form a 5-7 membered saturated, unsaturated or aromatic heterocyclic or carbocyclic ring which contains one or more additional O, C(R₁)₂, S(O)_p, N, NR₁, or NR₅ atoms;

V is CH, S, or N;

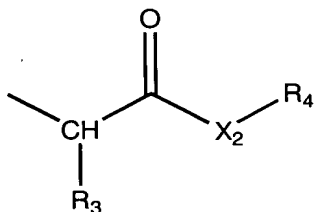
G is



each R₁, independently, is hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl or alkynyl, C₃-C₆ cycloalkyl, C₅-C₆ cycloalkenyl, a carboxylic acid or carboxylic acid isostere, N(R₄)_n, Ar₁, Ar₄ or K-L wherein said alkyl, cycloalkyl, cycloalkenyl, alkynyl, alkenyl, Ar₁ or Ar₄ is optionally substituted with one or more substituent(s) independently selected from the group consisting of:

2-furyl, 2-thienyl, pyridyl, phenyl, C₃-C₆ cycloalkyl wherein said furyl, thienyl, pyridyl, phenyl or cycloalkyl group optionally is substituted with C₁-C₄ alkoxy, (Ar₁)_n, halo, halo-C₁-C₆-alkyl, carbonyl, thiocarbonyl, C₁-C₆ thioester, cyano, imino, COOR₆ in which R₆ is C₁-C₆ straight or branched chain alkyl or alkenyl, hydroxy, nitro, trifluoromethyl, C₁-C₆ alkoxy, C₂-C₄ alkenyloxy, C₁-C₆ alkylaryloxy C₁-C₆ aryloxy, aryl-(C₁-C₆)-alkyloxy, phenoxy, benzyloxy, thio-(C₁-C₆)-alkyl, C₁-C₆-alkylthio,

5 sulfhydryl, sulfonyl, amino, (C₁-C₆)-mono- or
di-alkylamino, amino-(C₁-C₆)-alkyl,
aminocarboxy, C₃-C₈ cycloalkyl, C₁-C₆ straight or
branched chain alkyl, C₂-C₆ straight or branched
chain alkenyl optionally substituted with
10 (Ar₁)_n, C₃-C₈ cycloalkyl, C₁-C₆ straight or
branched chain alkyl, C₂-C₆ straight or branched
chain alkenyl substituted with C₃-C₈ cycloalkyl,
C₃-C₈ cycloalkyl, and Ar₂, and, wherein any
carbon atom of an alkyl or alkenyl group may
optionally replaced with O, NR₅, or S(O)_p; or,
R₁ is a moiety of the formula:



15 wherein:

R₃ is C₁-C₉ straight or branched chain alkyl which
is optionally substituted with C₃-C₈ cycloalkyl
or Ar₁;

20 X₂ is O or NR₆, wherein R₆ is selected from the
group consisting of hydrogen, C₁-C₆ straight or
branched chain alkyl, and C₂-C₆ straight or
branched chain alkenyl;

25 R₄ is selected from the group consisting of
phenyl, benzyl, C₁-C₅ straight or branched chain
alkyl, C₂-C₅ straight or branched chain alkenyl,
C₁-C₅ straight or branched chain alkyl
substituted with phenyl, and C₂-C₅ straight or
30 branched chain alkenyl substituted with phenyl;

R_2 is C_1-C_9 straight or branched chain alkyl, C_2-C_9 straight or branched chain alkenyl, C_3-C_8 cycloalkyl, C_5-C_7 cycloalkenyl or Ar_1 , wherein said alkyl, alkenyl, cycloalkyl, or
5 cycloalkenyl is optionally substituted with one or more substituents selected from the group consisting of C_1-C_6 straight or branched chain alkyl, C_2-C_6 straight or branched chain alkenyl, C_3-C_8 cycloalkyl, C_5-C_7 cycloalkenyl, $(Ar_1)_n$ and
10 hydroxy; or,

R_2 is either hydrogen or P; Y is either oxygen or CH-P, provided that if R_2 is hydrogen, then Y is CH-P, or if Y is oxygen then R_2 is P;
15

P is hydrogen, O- $(C_1-C_4$ straight or branched chain alkyl), O- $(C_2-C_4$ straight or branched chain alkenyl), C_1-C_6 straight or branched chain alkyl, C_2-C_6 straight or branched chain
20 alkenyl, C_5-C_7 cycloalkyl, C_5-C_7 cycloalkenyl substituted with C_1-C_4 straight or branched chain alkyl or C_2-C_4 straight or branched chain alkenyl, $(C_1-C_4$ alkyl or C_2-C_4 alkenyl)- Ar_5 , or
25 Ar_5

Ar_1 or Ar_2 , independently, is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is optionally substituted with one or more
30 substituent(s) independently selected from the group consisting of halo, hydroxy, nitro, trifluoromethyl, C_1-C_6 straight or branched chain alkyl, C_2-C_6 straight or branched chain alkenyl, C_3-C_8 cycloalkyl, C_5-C_7 cycloalkenyl,
35 C_1-C_4 alkoxy, C_2-C_4 alkenyloxy, phenoxy,

benzyloxy, and amino; wherein the individual ring contains 5-8 members; and wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S, and, wherein any aromatic or tertiary alkylamine is optionally oxidized to a corresponding N-oxide;

m is 0 or 1

n is 1 or 2;

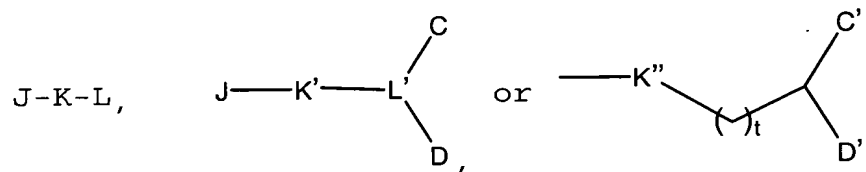
p is 0, 1, or 2;

t is 0, 1, 2, 3, or 4;

X is O, CH₂ or S;

W and Y, independently, are O, S, CH₂ or H₂;

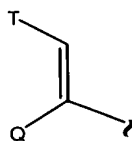
Z is C(R₁)₂, O, S, a direct bond or NR₁; or, Z-R₁ is



wherein:

C and D are, independently, hydrogen, Ar₄, Ar₁, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, Ar₁ and Ar₄; wherein said

- alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆ alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, haloalkyl, thiocarbonyl, C₁-C₆ ester, C₁-C₆ thioester, C₁-C₆ alkoxy, C₁-C₆ alkenoxy, cyano, nitro, imino, C₁-C₆ alkylamino, amino-(C₁-C₆)alkyl, sulfhydryl, thio-(C₁-C₆)alkyl, or sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NR₅, or (SO)_p;
- C' and D' are independently hydrogen, Ar₅, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₅, wherein, one or two carbon atom(s) of said alkyl or alkenyl may be substituted with one or two heteroatom(s) independently selected from the group consisting of oxygen, sulfur, SO, and SO₂ in chemically reasonable substitution patterns, or



- wherein Q is hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; and

T is Ar₅ or C₅-C₇ cycloalkyl substituted at positions 3 and 4 with substituents independently selected from the group consisting of hydrogen, hydroxy, O-(C₁-C₄ alkyl), O-(C₂-C₄ alkenyl), and carbonyl
5 J is O, NR₁, S, or (CR₁)₂;

K is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is
10 optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl,
15 hydroxy, carbonyl oxygen, and Ar₃; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl or Ar₃, is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen;
20 wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl or Ar₃, is optionally replaced with O, NR''', or S(O)_p;

K' is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said
25 alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, haloalkyl, thiocarbonyl, ester, thioester, alkoxy, alkenoxy, cyano, nitro, imino,
30 alkylamino, aminoalkyl, sulfhydryl, thioalkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NR₅,
35 S(O)_p;

K'' is $C(R_1)_2$, O, S, a direct bond or NR_1 ,

5 R''' is selected from the group consisting of
hydrogen, C_1-C_4 straight or branched chain
alkyl, C_3-C_4 straight or branched chain alkenyl
or alkynyl, and C_1-C_4 bridging alkyl wherein a
bridge is formed between the nitrogen and a
carbon atom of said alkyl or alkenyl chain
10 containing said heteroatom to form a ring,
wherein said ring is optionally fused to an Ar,
group;

15 L is an aromatic amine or a tertiary amine
oxidized to a corresponding N-oxide;
said aromatic amine being selected from the
group consisting of pyridyl, pyrimidyl,
quinolinyl, and isoquinolinyl, said aromatic
amine being optionally substituted with one or
20 more substituent(s) independently selected from
the group consisting of halo, hydroxy, nitro,
trifluoromethyl, C_1-C_6 straight or branched
chain alkyl, C_2-C_6 straight or branched chain
alkenyl, C_1-C_4 alkoxy, C_2-C_4 alkenyloxy, phenoxy,
25 benzyloxy, and amino; and wherein

said tertiary amine is $NR_xR_yR_z$, wherein R_x ,
 R_y , and R_z are independently selected from the
group consisting of C_1-C_6 straight or branched
chain alkyl and C_2-C_6 straight or branched chain
30 alkenyl; wherein said alkyl or alkenyl is
optionally substituted with one or more
substituent(s) independently selected from the
group consisting of C_1-C_6 straight or branched
chain alkyl, C_2-C_6 straight or branched chain
35 alkenyl, C_3-C_8 cycloalkyl, C_5-C_7 cycloalkenyl,,
hydroxy, carbonyl oxygen, and Ar_3 ; wherein said

alkyl, alkenyl, cycloalkyl, cycloalkenyl, or
Ar₃ is optionally substituted with C₁-C₄ alkyl,
C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen;
wherein any carbon atom of said alkyl, alkenyl,
5 cycloalkyl, cycloalkenyl, or Ar₃ is optionally
replaced with O, NR', S(O)_p;

L' is a direct bond, C₁-C₆ straight or branched
chain alkyl, or C₂-C₆ straight or branched
10 chain alkenyl, wherein any carbon atom of said
alkyl or alkenyl is optionally substituted in
one or more position(s) with amino, halo,
haloalkyl, thiocarbonyl, ester, thioester,
alkoxy, alkenoxy, cyano, nitro, imino,
15 alkylamino, aminoalkyl, sulfhydryl, thioalkyl,
sulfonyl, or oxygen to form a carbonyl, or
wherein any carbon atom of said alkyl or
alkenyl is optionally replaced with O, NR₅,
S(O)_p

20 Ar₃ is selected from the group consisting of
pyrrolidinyl, pyridyl, pyrimidyl, pyrazyl,
pyridazyl, quinolinyl, and isoquinolinyl; or,

25 Ar₄ is an alicyclic or aromatic, mono-, bi- or
tricyclic, carbo- or heterocyclic ring, wherein
the ring is optionally substituted with one or
more substituent(s) independently selected from
the group consisting of alkylamino, amido,
30 amino, aminoalkyl, azo, benzyloxy, C₁-C₉
straight or branched chain alkyl, C₁-C₉ alkoxy,
C₂-C₉ alkenyloxy, C₂-C₉ straight or branched
chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇
cycloalkenyl, carbonyl, carboxy, cyano, diazo,
35 ester, formanilido, halo, haloalkyl, hydroxy,

imino, isocyano, isonitrilo, nitrilo, nitro, nitroso, phenoxy, sulfhydryl, sulfonylsulfoxy, thio, thioalkyl, thiocarbonyl, thiocyano, thioester, thioformamido, trifluoromethyl, and carboxylic and heterocyclic moieties; wherein the individual alicyclic or aromatic ring contains 5-8 members and wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Ar₅ is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, monocyclic and bicyclic heterocyclic ring systems with individual ring sizes being 5 or 6 which contain in either or both rings a total of 1-4 heteroatom(s) independently selected from the group consisting of oxygen, nitrogen and sulfur; wherein Ar₅ optionally contains 1-3 substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, hydroxymethyl, nitro, CF₃, trifluoromethoxy, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, O-(C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄ straight or branched chain alkenyl), O-benzyl, O-phenyl, amino, 1,2-methylenedioxy, carbonyl, and phenyl;

R₅ is selected from the group consisting of
hydrogen, C₁-C₆ straight or branched chain
alkyl, C₃-C₆ straight or branched chain alkenyl
or alkynyl, and C₁-C₄ bridging alkyl wherein a
5 bridge is formed between the nitrogen and a
carbon atom of said alkyl or alkenyl chain
containing said heteroatom to form a ring,
wherein said ring is optionally fused to an Ar₄
or Ar₁ group;

10

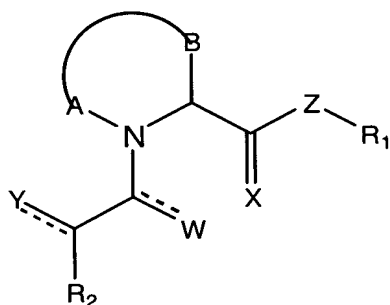
U is either O or N, provided that:
when U is O, then R' is a lone pair of electrons and
R'' is selected from the group consisting of
Ar₄, C₃-C₈ cycloalkyl, C₁-C₉ straight or
15 branched chain alkyl, and C₂-C₉ straight or
branched chain alkenyl, wherein said alkyl or
alkenyl is optionally substituted with one or
more substituent(s) independently selected from
the group consisting of Ar₄ and C₃-C₈
20 cycloalkyl; and

when U is N, then R' and R'' are, independently,
selected from the group consisting of
hydrogen, Ar₄, C₃-C₁₀ cycloalkyl, a C₇-C₁₂ bi- or
25 tri-cyclic carbocycle, C₁-C₉ straight or
branched chain alkyl, and C₂-C₉ straight or
branched chain alkenyl, wherein said alkyl or
alkenyl is optionally substituted with one or
more substituent(s) independently selected from
30 the group consisting of Ar₄ and C₃-C₈
cycloalkyl; or R' and R'' are taken together to
form a heterocyclic 5- or 6-membered ring
selected from the group consisting of

pyrrolidine, imidazolidine, pyrazolidine,
piperidine, and piperazine; or,

a pharmaceutically acceptable salt, ester or solvate
5 thereof.

116. A method as claimed in Claim 115 in which the
sensorineurotrophic compound is a compound of formula I:



(I)

or a pharmaceutically acceptable salt, ester, or solvate
thereof, wherein:

A and B, together with the nitrogen and carbon atoms
15 to which they are respectively attached, form a 5-7
membered saturated or unsaturated heterocyclic ring
containing one or more heteroatom(s) independently
selected from the group consisting of O, S, SO, SO₂, N,
NH, and NR₂;

20 X is either O or S;

Z is either S, CH₂, CHR₁ or CR₁R₃;

W and Y are independently O, S, CH₂ or H₂;

R₁ and R₃ are independently C₁-C₆ straight or
branched chain alkyl or C₂-C₆ straight or branched chain
25 alkenyl, wherein said alkyl or alkenyl is substituted
with one or more substituent(s) independently selected
from the group consisting of (Ar₁)_n, C₁-C₆ straight or
branched chain alkyl or C₂-C₆ straight or branched chain

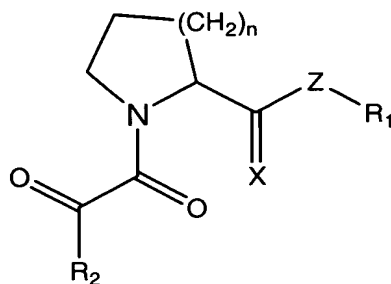
alkenyl substituted with $(Ar_1)_n$, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with C₃-C₈ cycloalkyl, and Ar₂;

5 n is 1 or 2;

 R₂ is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is either
10 unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₄ straight or branched chain alkyl, C₂-C₄ straight or branched chain alkenyl, and hydroxy; and

 Ar₁ and Ar₂ are independently an alicyclic or
15 aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein said ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxyl, nitro, trifluoromethyl, C₁-C₆ straight or branched chain
20 alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino; wherein the individual ring size is 5-8 members; and wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N,
25 and S.

117. A method as claimed in Claim 116 in which the sensorineurotrophic compound is a compound of formula II:



(II)

or a pharmaceutically acceptable salt, ester, or solvate
 5 thereof, wherein:

n is 1 or 2;

X is O or S;

Z is selected from the group consisting of S, CH₂,
 CHR₁, and CR₁R₃;

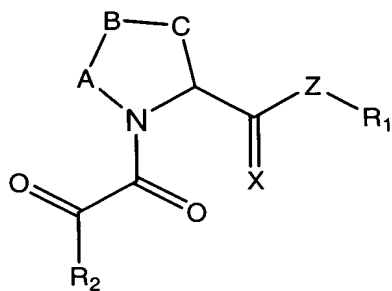
10 R₁ and R₃ are independently selected from the group
 consisting of C₁-C₅ straight or branched chain alkyl, C₂-
 C₅ straight or branched chain alkenyl, and Ar₁, wherein
 said alkyl, alkenyl or Ar₁ is unsubstituted or
 substituted with one or more substituent(s) independently
 15 selected from the group consisting of halo, nitro, C₁-C₆
 straight or branched chain alkyl, C₂-C₆ straight or
 branched chain alkenyl, hydroxy, C₁-C₄ alkoxy, C₂-C₄
 alkenyloxy, phenoxy, benzyloxy, amino, and Ar₁;

R₂ is selected from the group consisting of C₁-C₉
 20 straight or branched chain alkyl, C₂-C₉ straight or
 branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇
 cycloalkenyl, and Ar₁; and

Ar₁ is phenyl, benzyl, pyridyl, fluorenyl,
 thioindolyl or naphthyl, wherein said Ar₁ is
 25 unsubstituted or substituted with one or more
 substituent(s) independently selected from the group
 consisting of halo, trifluoromethyl, hydroxy, nitro, C₁-
 C₆ straight or branched chain alkyl, C₂-C₆ straight or

branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino.

118. A method as claimed in Claim 116 in which the
5 sensorineurotrophic compound is a compound of formula
III:



(III)

10

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

A, B, and C are independently CH₂, O, S, SO, SO₂, NH or NR₂;

15

X is O or S;

Z is S, CH₂, CHR₁ or CR₁R₃;

R₁ and R₃ are independently C₁-C₆ straight or
branched chain alkyl or C₂-C₆ straight or branched chain
alkenyl, wherein said alkyl or alkenyl is substituted
20 with one or more substituent(s) independently selected
from the group consisting of (Ar₁)_n, C₁-C₆ straight or
branched chain alkyl or C₂-C₆ straight or branched chain
alkenyl substituted with (Ar₁)_n, C₃-C₈ cycloalkyl, C₁-C₆
straight or branched chain alkyl or C₂-C₆ straight or
25 branched chain alkenyl substituted with C₃-C₈ cycloalkyl,
and Ar₂;

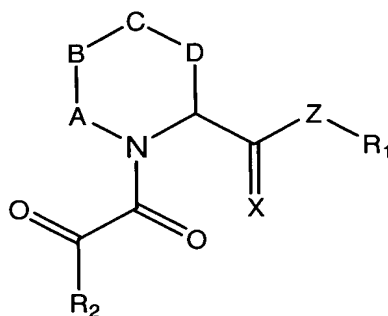
n is 1 or 2;

R₂ is either C₁-C₉ straight or branched chain alkyl,
C₂-C₉ straight or branched chain alkenyl, C₃-C₈

cycloalkyl, C₅-C₇ cycloalkenyl or Ar₁, wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₄ straight or branched chain alkyl, C₂-C₄ straight or branched chain alkenyl, and hydroxyl; and

Ar₁ and Ar₂ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein said ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxyl, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino; wherein the individual ring size is 5-8 members; and wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S.

119. A method as claimed in Claim 116 in which the sensorineurotrophic compound is a compound of formula IV:



(IV)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

A, B, C and D are independently CH₂, O, S, SO, SO₂, NH or NR₂;

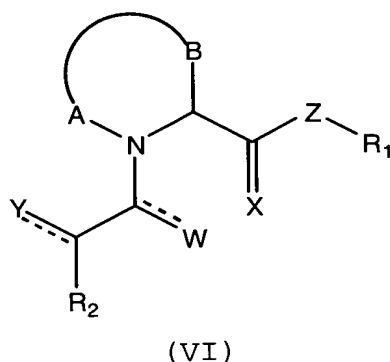
X is O or S;

Z is S, CH₂, CHR₁ or CR₁R₃;

- 5 R₁ and R₃ are independently C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is substituted with one or more substituent(s) independently selected from the group consisting of (Ar₁)_n, C₁-C₆ straight or
- 10 branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with (Ar₁)_n, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with C₃-C₈ cycloalkyl, and Ar₂;
- 15 n is 1 or 2;
- R₂ is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl or Ar₁, wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is either
- 20 unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₁-C₄ straight or branched chain alkyl, C₂-C₄ straight or branched chain alkenyl, and hydroxyl; and
- 25 Ar₁ and Ar₂ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein said ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxyl,
- 30 nitro, trifluoro-methyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino; wherein the individual ring size is 5-8 members; and wherein the heterocyclic ring contains 1-6 heteroatom(s)

independently selected from the group consisting of O, N, and S.

120. A method as claimed in Claim 115 in which the
5 sensorineurotrophic agent may be a compound of formula VI:



10 or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

A and B, together with the nitrogen and carbon atoms to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring
15 containing, in addition to the nitrogen atom, one or more heteroatom(s) independently selected from the group consisting of O, S, SO, SO₂, N, NH, and NR₁;

X is O or S;

Z is O, NH or NR₁;

20 W and Y are independently O, S, CH₂ or H₂;

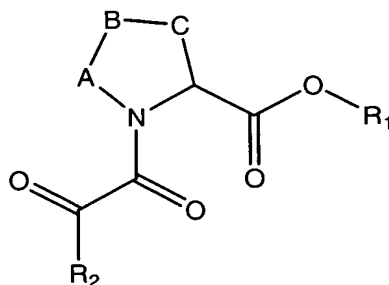
R₁ is C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, which is substituted with one or more substituent(s) independently selected from the group consisting of (Ar₁)_n, C₁-C₆ straight or
25 branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with (Ar₁)_n, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or

branched chain alkenyl substituted with C₃-C₈ cycloalkyl, and Ar₂;

n is 1 or 2;

- R₂ is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain or alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₄ straight or branched chain alkyl, C₂-C₄ straight or branched chain alkenyl, and hydroxyl; and Ar₁ and Ar₂ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxyl, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino; wherein the individual ring size is 5-8 members; and wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S.

121. The method of Claim 120 in which the sensorineurotrophic compound is a compound of formula VII:



(VII)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

A, B and C are independently CH₂, O, S, SO, SO₂, NH or NR₁;

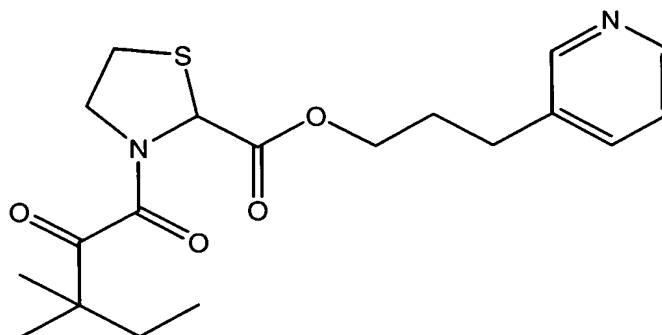
5 R₁ is C₁-C₅ straight or branched chain alkyl or C₂-C₅ straight or branched chain alkenyl, which is substituted with one or more substituent(s) independently selected from the group consisting of (Ar₁)_n and C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain
10 alkenyl substituted with (Ar₁)_n;

n is 1 or 2;

R₂ is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁; and

15 Ar₁ is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxyl, nitro, trifluoromethyl, C₁-
20 C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino; wherein the individual ring size is 5-8 members; and wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected
25 from the group consisting of O, N, and S.

122. The method of Claim 121 in which the sensorineurotrophic compound is:



123. A method as claimed in Claim 121 in which:

A is CH₂;

5 B is CH₂ or S;

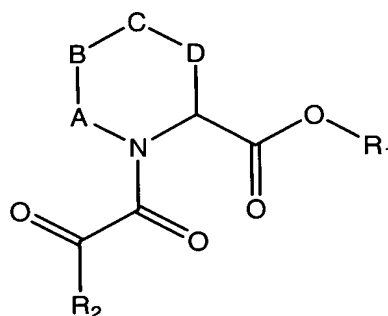
C is CH₂ or NH;

R₁ is selected from the group consisting of 3-phenylpropyl and 3-(3-pyridyl)propyl; and

10 R₂ is selected from the group consisting of 1,1-dimethylpropyl, cyclohexyl, and *tert*-butyl.

124. A method as claimed in Claim 120 in which the sensorineurotrophic compound is a compound of formula VIII:

15



(VIII)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

20 A, B, C and D are independently CH₂, O, S, SO, SO₂, NH or NR₁;

R_1 is C_1 - C_5 straight or branched chain alkyl or C_2 - C_5 straight or branched chain alkenyl, which is substituted with one or more substituent(s) independently selected from the group consisting of $(Ar_1)_n$ and C_1 - C_6 straight or branched chain alkyl or C_2 - C_6 straight or branched chain alkenyl substituted with $(Ar_1)_n$;

n is 1 or 2;

R_2 is either C_1 - C_9 straight or branched chain alkyl, C_2 - C_9 straight or branched chain alkenyl, C_3 - C_8 cycloalkyl, C_5 - C_7 cycloalkenyl, or Ar_1 ; and

Ar_1 is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxyl, nitro, trifluoromethyl, C_1 - C_6 straight or branched chain alkyl, C_2 - C_6 straight or branched chain alkenyl, C_1 - C_4 alkoxy, C_2 - C_4 alkenyloxy, phenoxy, benzyloxy, and amino; wherein the individual ring size is 5-8 members; and wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S.

125. A method of Claim 124 in which:

A is CH_2 ;

25 B is CH_2 ;

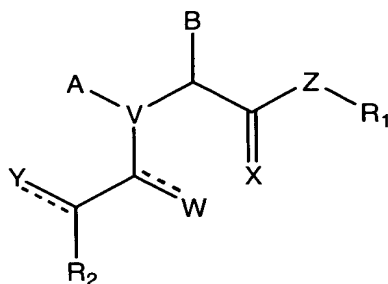
C is S, O or NH;

D is CH_2 ;

R_1 is selected from the group consisting of 3-phenylpropyl and (3,4,5-trimethoxy)phenylpropyl; and

30 R_2 is selected from the group consisting of 1,1-dimethylpropyl, cyclohexyl, *tert*-butyl, phenyl, and 3,4,5-trimethoxyphenyl.

126. A method as claimed in Claim 115 in which the sensorineurotrophic agent may be a compound of formula IX:



(IX)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

V is CH, N, or S;

A and B, together with V and the carbon atom to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing, in addition to V, one or more heteroatom(s) independently selected from the group consisting of O, S, SO, SO₂, N, NH, and NR;

R is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₉ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₃, wherein R is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, halo-C₁-C₆-alkyl, carbonyl, carboxy, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, thio-C₁-C₆-alkyl, C₁-C₆-alkylthio, sulfhydryl, amino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, aminocarboxyl, and Ar₄;

Ar₃ and Ar₄ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring; wherein the individual ring size is 5-8 members;

wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and

X is O or S;

5 Z is O, NH or NR₁;

W and Y are independently O, S, CH₂ or H₂;

R₁ is C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, which is substituted with one or more substituent(s) independently selected
10 from the group consisting of (Ar₁)_n, C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with (Ar₁)_n, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with C₃-C₈ cycloalkyl,
15 and Ar₂;

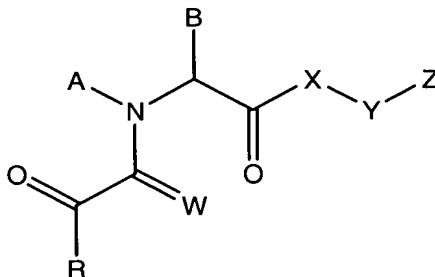
n is 1 or 2;

R₂ is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain or alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, wherein said
20 alkyl, alkenyl, cycloalkyl or cycloalkenyl is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₄ straight or branched chain alkyl, C₂-C₄ straight or branched chain alkenyl, and hydroxyl; and

25 Ar₁ and Ar₂ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxyl,
30 nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino; wherein the individual ring size is 5-8 members; and wherein the heterocyclic ring contains 1-6 heteroatom(s)

independently selected from the group consisting of O, N, and S.

127. A method as claimed in Claim 115 in which the
5 sensorineurotrophic compound is a compound of formula X:



(X)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

- 10 A and B, together with the nitrogen and carbon atoms to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing one or more heteroatom(s) independently selected from the group consisting of CH, CH₂, O, S, SO,
15 SO₂, N, NH, and NR₁;

W is O, S, CH₂, or H₂;

- R is C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, which is optionally substituted
20 with one or more substituent(s) independently selected from the group consisting of C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, and Ar₂;

- Ar₁ and Ar₂ are independently selected from the group consisting of 1-naphthyl, 2-naphthyl, 1-indolyl, 2-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, having one or
25 more substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl,

C₂-C₆ straight or branched chain alkenyl, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

X is O, NH, NR₁, S, CH, CR₁, or CR₁R₃;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl;
5 wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-
10 C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl,
15 cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄
20 bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Z is an aromatic amine or a tertiary amine oxidized
25 to a corresponding N-oxide;

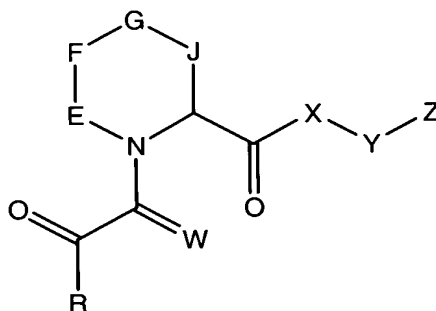
said aromatic amine is selected from the group consisting of pyridyl, pyrimidyl, quinolinyl, or isoquinolinyl, which is either unsubstituted or substituted with one or more substituent(s) independently
30 selected from the group consisting of halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

said tertiary amine is $\text{NR}_4\text{R}_5\text{R}_6$, wherein R_4 , R_5 , and R_6 are independently selected from the group consisting of $\text{C}_1\text{-C}_6$ straight or branched chain alkyl or $\text{C}_2\text{-C}_6$ straight or branched chain alkenyl optionally substituted with one or more substituent(s) independently selected from the group consisting of $\text{C}_1\text{-C}_6$ straight or branched chain alkyl, $\text{C}_2\text{-C}_6$ straight or branched chain alkenyl, $\text{C}_3\text{-C}_8$ cycloalkyl, $\text{C}_5\text{-C}_7$ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with $\text{C}_1\text{-C}_4$ alkyl, $\text{C}_2\text{-C}_4$ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR_1 , S, SO, or SO_2 ;

Ar is selected from the group consisting of pyrrolidinyl, pyridyl, pyrimidyl, pyrazyl, pyridazyl, quinolinyl, and isoquinolinyl; and

R_1 and R_3 are independently hydrogen, $\text{C}_1\text{-C}_4$ straight or branched chain alkyl, $\text{C}_3\text{-C}_4$ straight or branched chain alkenyl or alkynyl, or Y-Z.

128. A method as claimed in Claim 127 in which the sensorineurotrophic compound is a compound of formula XI:



(XI)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

E, F, G and J are independently CH₂, O, S, SO, SO₂, NH or NR₁;

W is O, S, CH₂, or H₂;

R is C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, which is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, and Ar₁;

Ar₁ is selected from the group consisting of 1-naphthyl, 2-naphthyl, 1-indolyl, 2-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl, having one or more substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

X is O, NH, NR₁, S, CH, CR₁, or CR₁R₃;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄

straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said
5 ring is optionally fused to an Ar group;

Z is an aromatic amine or a tertiary amine oxidized to a corresponding N-oxide;

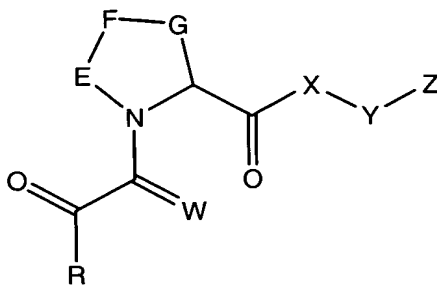
said aromatic amine is pyridyl, pyrimidyl, quinolinyl, and isoquinolinyl, which is either
10 unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy,
15 phenoxy, benzyloxy, and amino;

said tertiary amine is NR₄R₅R₆, wherein R₄, R₅, and R₆ are independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl and C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl
20 is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein
25 said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₁, S, SO, or SO₂;

30 Ar is selected from the group consisting of pyrrolidinyl, pyridyl, pyrimidyl, pyrazyl, pyridazyl, quinolinyl, and isoquinolinyl; and

R₁ and R₃ are independently hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, or Y-Z.

- 5 129. A method as claimed in Claim 127 in which the sensorineurotrophic compound is a compound of formula XII:



(XII)

- 10 or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

E, F, and G are independently CH₂, O, S, SO, SO₂, NH or NR₁;

W is O, S, CH₂, or H₂;

- 15 R is C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, which is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, and Ar₁;

Ar₁ is selected from the group consisting of 1-naphthyl, 2-naphthyl, 1-indolyl, 2-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, having one or more substituent(s)

- 25 independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

X is O, NH, NR₁, S, CH, CR₁, or CR₁R₃;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted
5 with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl,
10 cycloalkenyl, or Ar is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

15 R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain
20 containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Z is an aromatic amine or a tertiary amine oxidized to a corresponding N-oxide;

said aromatic amine is pyridyl, pyrimidyl,
25 quinolinyl, or isoquinolinyl, which is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or
30 branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

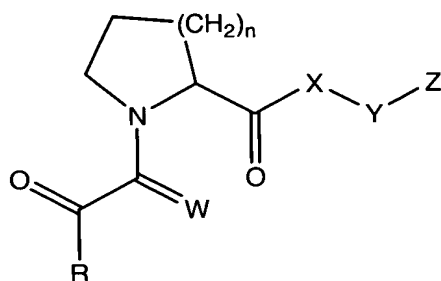
said tertiary amine is NR₄R₅R₆, wherein R₄, R₅, and R₆ are independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl and C₂-C₆ straight

or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₁, S, SO, or SO₂;

Ar is selected from the group consisting of pyrrolidinyl, pyridyl, pyrimidyl, pyrazyl, pyridazyl, quinolinyl, and isoquinolinyl; and

R₁ and R₃ are independently hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, or Y-Z.

130. A method as Claimed in Claim 127 in which the sensorineurotrophic compound is a compound of formula XIII:



(XIII)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

n is 1, 2, or 3, forming a 5-7 member heterocyclic ring;

W is O, S, CH₂, or H₂;

R is C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, which is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, and Ar₁;

Ar₁ is selected from the group consisting of 1-naphthyl, 2-naphthyl, 1-indolyl, 2-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, having one or more substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

X is O, NH, NR₁, S, CH, CR₁, or CR₁R₃;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain

containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Z is an aromatic amine or a tertiary amine oxidized to a corresponding N-oxide;

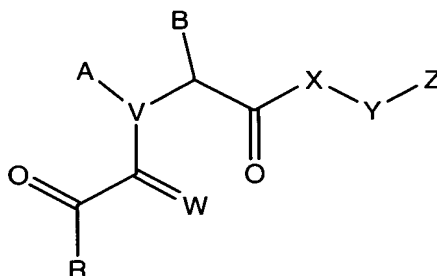
5 said aromatic amine is pyridyl, pyrimidyl, quinolinyl, or isoquinolinyl, which is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxy, nitro, trifluoromethyl, C₁-
10 C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

 said tertiary amine is NR₄R₅R₆, wherein R₄, R₅, and R₆ are independently selected from the group consisting of
15 C₁-C₆ straight or branched chain alkyl and C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or
20 branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of
25 said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₁, S, SO, or SO₂;

 Ar is selected from the group consisting of pyrrolidinyl, pyridyl, pyrimidyl, pyrazyl, pyridazyl, quinolinyl, and isoquinolinyl; and

30 R₁ and R₃, independently, are hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, or Y-Z.

131. A method as claimed in Claim 115 in which the sensorineurotrophic agent may be a compound of formula XIV:



(XIV)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

V is CH, N, or S;

A and B, together with V and the carbon atom to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing, in addition to V, one or more heteroatom(s) independently selected from the group consisting of O, S, SO, SO₂, N, NH, and NR₇;

R₇ is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₉ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₃, wherein R₇ is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, halo-C₁-C₆-alkyl, carbonyl, carboxy, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, thio-C₁-C₆-alkyl, C₁-C₆-alkylthio, sulfhydryl, amino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, aminocarboxyl, and Ar₄;

Ar₃ and Ar₄ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring; wherein the individual ring size is 5-8 members;

wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and

W is O, S, CH₂, or H₂;

5 R is C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, which is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₄ alkyl, C₂-C₄ alkenyl,
10 hydroxy, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, and Ar₂;

Ar₁ and Ar₂ are independently selected from the group consisting of 1-naphthyl, 2-naphthyl, 1-indolyl, 2-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, having one or
15 more substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

20 X is O, NH, NR₁, S, CH, CR₁, or CR₁R₃;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected
25 from the group consisting of C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C₁-C₄
30 alkyl, C₂-C₄ alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

R_2 is selected from the group consisting of hydrogen, C_1 - C_4 straight or branched chain alkyl, C_3 - C_4 straight or branched chain alkenyl or alkynyl, and C_1 - C_4 bridging alkyl wherein a bridge is formed between the
5 nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Z is an aromatic amine or a tertiary amine oxidized to a corresponding N-oxide;

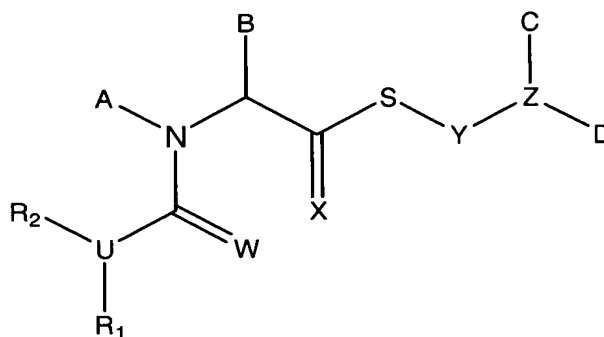
10 said aromatic amine is selected from the group consisting of pyridyl, pyrimidyl, quinolinyl, or isoquinolinyl, which is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, hydroxy,
15 nitro, trifluoromethyl, C_1 - C_6 straight or branched chain alkyl, C_2 - C_6 straight or branched chain alkenyl, C_1 - C_4 alkoxy, C_2 - C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

said tertiary amine is $NR_4R_5R_6$, wherein R_4 , R_5 , and R_6 are independently selected from the group consisting of
20 C_1 - C_6 straight or branched chain alkyl or C_2 - C_6 straight or branched chain alkenyl optionally substituted with one or more substituent(s) independently selected from the group consisting of C_1 - C_6 straight or branched chain alkyl, C_2 - C_6 straight or branched chain alkenyl, C_3 - C_8
25 cycloalkyl, C_5 - C_7 cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, or Ar is optionally substituted with C_1 - C_4 alkyl, C_2 - C_4 alkenyl, hydroxy, or carbonyl oxygen; wherein any carbon atom of said alkyl, alkenyl,
30 cycloalkyl, cycloalkenyl, or Ar is optionally replaced with O, NH, NR_1 , S, SO, or SO_2 ;

Ar is selected from the group consisting of pyrrolidinyl, pyridyl, pyrimidyl, pyrazyl, pyridazyl, quinolinyl, and isoquinolinyl; and

R_1 and R_3 are independently hydrogen, C_1 - C_4 straight or branched chain alkyl, C_3 - C_4 straight or branched chain alkenyl or alkynyl, or Y-Z.

- 5 132. A method as claimed in Claim 115 in which the sensorineurotrophic compound is a compound of formula XV:



(XV)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

A and B, together with the nitrogen and carbon atoms to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing, in addition to the nitrogen atom, one or more additional heteroatom(s) independently selected from the group consisting of O, S, SO, SO₂, N, NH, and NR₃;

X is either O or S;

Y is a direct bond, C_1 - C_6 straight or branched chain alkyl, or C_2 - C_6 straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo- C_1 - C_6 -alkyl, thiocarbonyl, C_1 - C_6 -ester, thio- C_1 - C_6 -ester, C_1 - C_6 -alkoxy, C_2 - C_6 -alkenoxy, cyano, nitro, imino, C_1 - C_6 -alkylamino, amino- C_1 - C_6 -alkyl, sulfhydryl, thio- C_1 - C_6 -alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

R₃ is selected from the group consisting of hydrogen, C₁-C₆ straight or branched chain alkyl, C₃-C₆ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆-alkylamino, amido, amino, amino-C₁-C₆-alkyl, azo, benzyloxy, C₁-C₉ straight or branched chain alkyl, C₁-C₉ alkoxy, C₂-C₉ alkenyloxy, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, carbonyl, carboxy, cyano, diazo, C₁-C₆-ester, formamido, halo, halo-C₁-C₆-alkyl, hydroxy, imino, isocyano, isonitrilo, nitrilo, nitro, nitroso, phenoxy, sulfhydryl, sulfonylsulfoxy, thio, thio-C₁-C₆-alkyl, thiocarbonyl, thiocyano, thio-C₁-C₆-ester, thioformamido, trifluoromethyl, and carboxylic and heterocyclic moieties; wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl,

sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

5 C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈
10 cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy,
15 C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein
20 any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

W is O or S; and

U is either O or N, provided that:

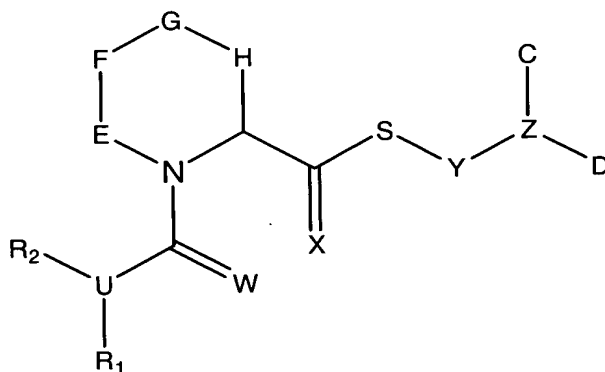
25 when U is O, then R₁ is a lone pair of electrons and R₂ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more
30 substituent(s) independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; and
when U is N, then R₁ and R₂ are, independently, selected from the group consisting of hydrogen, Ar, C₃-C₁₀ cycloalkyl, C₇-C₁₂ bi- or tri-cyclic carbocycle, C₁-C₆

straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is substituted with one or more substituent(s) independently selected from the group consisting of Ar and C₃-C₈

- 5 cycloalkyl; or R₁ and R₂ are taken together to form a heterocyclic 5 or 6 membered ring selected from the group consisting of pyrrolidine, imidazolidine, pyrazolidine, piperidine, and piperazine.

- 10 133. A method as claimed in Claim 132 in which Ar is selected from the group consisting of phenyl, benzyl, naphthyl, indolyl, pyridyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl, purinyl, quinolinyl, isoquinolinyl, furyl, fluorenyl, thiophenyl, imidazolyl, 15 oxazolyl, thiazolyl, pyrazolyl, and thienyl.

134. A method as claimed in Claim 132 in which the sensorineurotrophic compound is a compound of formula XVI:



(XVI)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

- 20 E, F, G and J are independently CH₂, O, S, SO, SO₂, NH, or NR₃;
X is either O or S;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with
5 amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulphydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or
10 alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

R₃ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄
15 bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or
20 tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆-alkylamino, amido, amino, amino-C₁-C₆-alkyl, azo, benzyloxy, C₁-C₉ straight or branched chain
25 alkyl, C₁-C₉ alkoxy, C₂-C₉ alkenyloxy, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, carbonyl, carboxy, cyano, diazo, C₁-C₆-ester, formanilido, halo, halo-C₁-C₆-alkyl, hydroxy, imino, isocyano, isonitrilo, nitrilo, nitro, nitroso,
30 phenoxy, sulphydryl, sulfonylsulfoxy, thio, thio-C₁-C₆-alkyl, thiocarbonyl, thiocyano, thio-C₁-C₆-ester, thioformamido, trifluoromethyl, and carboxylic and heterocyclic moieties, including alicyclic and aromatic structures; wherein the individual ring size is 5-8

members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and wherein any aromatic or tertiary alkyl amine is optionally oxidized to a
5 corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with
10 amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or
15 alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is
20 optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl,
25 thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or sulfonyl; wherein any carbon atom of said alkyl or
30 alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

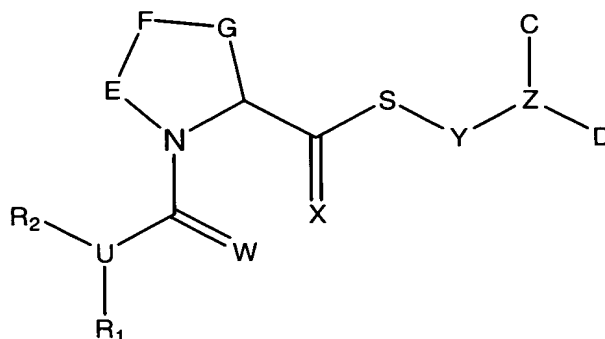
W is O or S; and

U is either O or N, provided that:

when U is O, then R₁ is a lone pair of electrons
and R₂ is selected from the group consisting of Ar,
C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain
5 alkyl, and C₂-C₆ straight or branched chain
alkenyl, wherein said alkyl or alkenyl is
optionally substituted with one or more
substituent(s) independently selected from the
group consisting of Ar and C₃-C₈ cycloalkyl; and
10 when U is N, then R₁ and R₂ are, independently,
selected from the group consisting of hydrogen,
Ar, C₃-C₁₀ cycloalkyl, C₇-C₁₂ bi- or tri-cyclic
carbocycle, C₁-C₆ straight or branched chain alkyl,
and C₂-C₆ straight or branched chain alkenyl,
15 wherein said alkyl or alkenyl is optionally
substituted with one or more substituent(s)
independently selected from the group consisting
of Ar and C₃-C₈ cycloalkyl; or R₁ and R₂ are taken
together to form a heterocyclic 5 or 6 membered
20 ring selected from the group consisting of
pyrrolidine, imidazolidine, pyrazolidine,
piperidine, and piperazine.

135. A method as claimed in Claim 134 in which Ar is
25 selected from the group consisting of phenyl, benzyl,
naphthyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl,
purinyl, quinolinyl, isoquinolinyl, furyl, thiophenyl,
imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.

30 136. A method as claimed in Claim 132 in which the
sensorineurotrophic compound is a compound of formula
XVII:



(XVII)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

E, F, and G are independently CH₂, O, S, SO, SO₂, NH, and NR₃;

X is either O or S;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

R₃ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆-alkylamino, amido, amino, amino-C₁-C₆-alkyl, azo, benzyloxy, C₁-C₉ straight or branched chain alkyl, C₁-C₉ alkoxy, C₂-C₉ alkenyloxy, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, carbonyl, carboxy, cyano, diazo, C₁-C₆-ester, formanilido, halo, halo-C₁-C₆-alkyl, hydroxy, imino, isocyano, isonitrilo, nitrilo, nitro, nitroso, phenoxy, sulfhydryl, sulfonylsulfoxy, thio, thio-C₁-C₆-alkyl, thiocarbonyl, thiocyano, thio-C₁-C₆-ester, thioformamido, trifluoromethyl, and carboxylic and heterocyclic moieties, including alicyclic and aromatic structures; wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or

branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

W is O or S; and

U is either O or N, provided that:

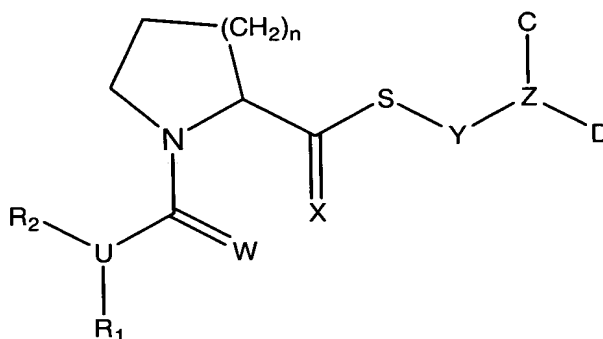
when U is O, then R₁ is a lone pair of electrons and R₂ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; and when U is N, then R₁ and R₂ are, independently, selected from the group consisting of hydrogen, Ar, C₃-C₈ cycloalkyl, C₇-C₁₂ bi- or tri-cyclic carbocycle, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; or R₁ and R₂ are taken

together to form a heterocyclic 5 or 6 membered ring selected from the group consisting of pyrrolidine, imidazolidine, pyrazolidine, piperidine, and piperazine.

5

137. A method as claimed in Claim 136 in which Ar is selected from the group consisting of phenyl, benzyl, naphthyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl, purinyl, quinolinyl, isoquinolinyl, furyl, thiophenyl, 10 imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.

138. A method as claimed in Claim 115 in which the sensorineurotrophic compound is a compound of formula XVIII:



15

(XVIII)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

20

n is 1, 2 or 3;

X is either O or S;

25

Y is a direct bond, C_1 - C_6 straight or branched chain alkyl, or C_2 - C_6 straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo- C_1 - C_6 -alkyl, thiocarbonyl, C_1 - C_6 -ester, thio- C_1 - C_6 -ester, C_1 - C_6 -alkoxy, C_2 - C_6 -alkenoxy, cyano, nitro, imino, C_1 - C_6 -alkylamino, amino- C_1 - C_6 -alkyl,

sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

- 5 R₃ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain
10 containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more
15 substituent(s) independently selected from the group consisting of C₁-C₆-alkylamino, amido, amino, amino-C₁-C₆-alkyl, azo, benzyloxy, C₁-C₉ straight or branched chain alkyl, C₁-C₉ alkoxy, C₂-C₉ alkenyloxy, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇
20 cycloalkenyl, carbonyl, carboxy, cyano, diazo, C₁-C₆-ester, formamido, halo, halo-C₁-C₆-alkyl, hydroxy, imino, isocyano, isonitrilo, nitrilo, nitro, nitroso, phenoxy, sulfhydryl, sulfonylsulfoxy, thio, thio-C₁-C₆-alkyl, thiocarbonyl, thiocyano, thio-C₁-C₆-ester,
25 thioformamido, trifluoromethyl, and carboxylic and heterocyclic moieties, including alicyclic and aromatic structures; wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group
30 consisting of O, N, and S; and wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl,

wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, 5 nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

10 C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ 15 cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, alkoxy, C₂-C₆- 20 alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of 25 said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

W is O or S; and

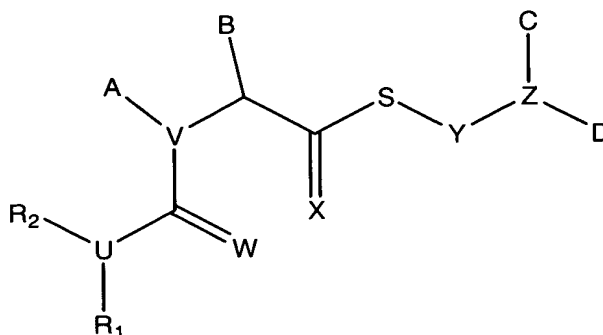
U is either O or N, provided that:

when U is O, then R₁ is a lone pair of electrons 30 and R₂ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain or alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more

substituent(s) independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; and when U is N, then R₁ and R₂ are, independently, selected from the group consisting of hydrogen, Ar, C₃-C₁₀ cycloalkyl, C₇-C₁₂ bi- or tri-cyclic carbocycle, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; or R₁ and R₂ are taken together to form a heterocyclic 5 or 6 membered ring selected from the group consisting of pyrrolidine, imidazolidine, pyrazolidine, piperidine, and piperazine.

139. A method as claimed in Claim 138 in which Ar is selected from the group consisting of phenyl, benzyl, naphthyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl, purinyl, quinolinyl, isoquinolinyl, furyl, thiophenyl, imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.

140. A method as claimed in Claim 116 in which the sensorineurotrophic compound is a compound of formula XIX:



(XIX)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

V is CH, N, or S;

Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

R₃ is selected from the group consisting of hydrogen, C₁-C₆ straight or branched chain alkyl, C₃-C₆ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s); wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with

amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form
5 a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or
10 branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or
15 cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or
20 sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂; and

25 A and B, together with the nitrogen and carbon atoms to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing, in addition to the nitrogen atom, one or more additional heteroatom(s) independently selected from the
30 group consisting of O, S, SO, SO₂, N, NH, and NR₃;

X is either O or S;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring

is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of C₁-C₆-alkylamino, amido, amino, amino-C₁-C₆-alkyl, azo, benzyloxy, C₁-C₉ straight or branched chain alkyl, C₁-C₉ alkoxy, C₂-C₉ alkenyloxy, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, carbonyl, carboxy, cyano, diazo, C₁-C₆-ester, formamido, halo, halo-C₁-C₆-alkyl, hydroxy, imino, isocyano, isonitrilo, nitrilo, nitro, nitroso, phenoxy, sulfhydryl, sulfonylsulfoxy, thio, thio-C₁-C₆-alkyl, thiocarbonyl, thiocyano, thio-C₁-C₆-ester, thioformamido, trifluoromethyl, and carboxylic and heterocyclic moieties; wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; and wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈

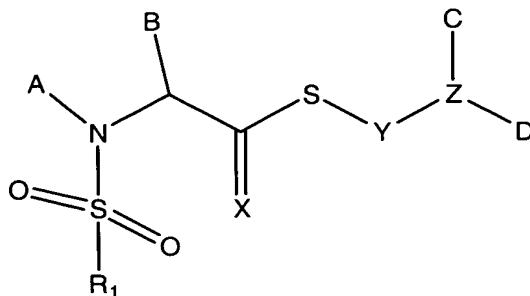
cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

W is O or S; and

U is either O or N, provided that:

when U is O, then R₁ is a lone pair of electrons and R₂ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; and when U is N, then R₁ and R₂ are, independently, selected from the group consisting of hydrogen, Ar, C₃-C₁₀ cycloalkyl, C₇-C₁₂ bi- or tri-cyclic carbocycle, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is substituted with one or more substituent(s) independently selected from the group consisting of Ar and C₃-C₈ cycloalkyl; or R₁ and R₂ are taken together to form a heterocyclic 5 or 6 membered ring selected from the group consisting of pyrrolidine, imidazolidine, pyrazolidine, piperidine, and piperazine.

141. A method as claimed in Claim 115 in which the sensorineurotrophic compound is a compound of formula XX:



(XX)

5 a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

A and B, together with the nitrogen and carbon atoms to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring
 10 containing, in addition to the nitrogen atom, one or more heteroatom(s) independently selected from the group consisting of O, S, SO, SO₂, N, NH, and NR₂;

X is either O or S;

Y is a direct bond, C₁-C₆ straight or branched chain
 15 alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano,
 20 nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂;

25 R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the

nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or
5 tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s); wherein the individual ring size is 5-8 members; wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group
10 consisting of O, N, and S; wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl,
15 wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl,
20 sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is
25 optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or
30 cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or

sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂; and

R₁ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar, C₃-C₈ cycloalkyl, amino, halo, halo-C₁-C₆-alkyl, hydroxy, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, carbonyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, and sulfonyl, wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂.

20

142. A method as claimed in claim 141 in which Ar is selected from the group consisting of phenyl, benzyl, naphthyl, indolyl, pyridyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl, purinyl, quinolinyl, isoquinolinyl, furyl, fluorenyl, thiophenyl, imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.

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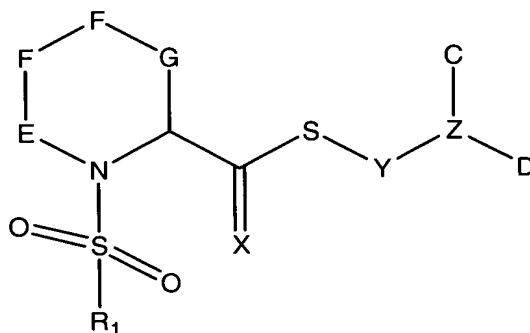
143. A method as claimed in Claim 142 in which A and B, together with the nitrogen and carbon atoms to which they are respectfully attached, form a 6 membered saturated or unsaturated heterocyclic ring; and R₂ is C₄-C₇ branched chain alkyl, C₄-C₇ cycloalkyl, phenyl, or 3,4,5-trimethoxyphenyl.

30

144. A method as claimed in Claim 141 in which the sensorineurotrophic compound is selected from the group consisting of:

- 3-(*para*-Methoxyphenyl)-1-propylmercaptyl (2*S*)-N-(benzenesulfonyl)pyrrolidine-2-carboxylate;
 3-(*para*-Methoxyphenyl)-1-propylmercaptyl (2*S*)-N-(α -toluenesulfonyl)pyrrolidine-2-carboxylate;
 3-(*para*-Methoxyphenyl)-1-propylmercaptyl (2*S*)-N-(α -toluenesulfonyl)pyrrolidine-2-carboxylate;
 1,5-Diphenyl-3-pentylmercaptyl-N-(*para*-toluenesulfonyl)pipecolate; and
 pharmaceutically acceptable salts and solvates thereof.

145. A method as claimed in Claim 141 in which the sensorineurotrophic compound is a compound of formula XXI:



(XXI)

- or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

E, F, G and J are independently CH₂, O, S, SO, SO₂, NH or NR₂;

X is either O or S;

- Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is

optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, 5 sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

R₂ is selected from the group consisting of 10 hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said 15 ring is optionally fused to an Ar group;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with 20 amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any atom of said alkyl or alkenyl 25 is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s); wherein the individual ring size is 5-8 30 members; wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂; and

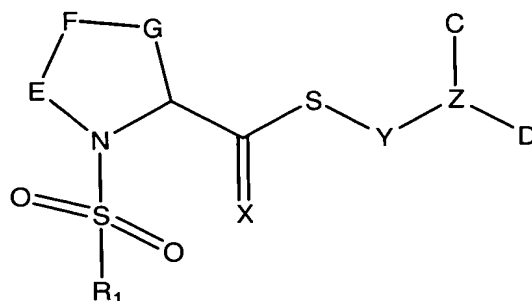
R₁ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar, C₃-C₈ cycloalkyl, amino, halo, halo-C₁-C₆-alkyl, hydroxy, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, carbonyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, and sulfonyl, wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂.

146. A method as claimed in Claim 145 in which Ar is selected from the group consisting of phenyl, benzyl,

naphthyl, indolyl, pyridyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl, purinyl, quinolinyl, isoquinolinyl, furyl, fluorenyl, thiophenyl, imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.

5

147. A method as claimed in Claim 141 in which the sensorineurotrophic agent is a compound of formula XXII:



(XXII)

10 or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

E, F, and G are independently CH₂, O, S, SO, SO₂, NH or NR₂;

X is either O or S;

15 Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-(C₁-C₆)-alkyl, thiocarbonyl, (C₁-C₆)-
 20 ester, thio-(C₁-C₆)-ester, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenoxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O,
 25 NH, NR₂, S, SO, or SO₂;

R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄

bridging alkyl wherein a bridge is formed between the nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

5 Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s); wherein the individual ring size is 5-8 members; wherein the heterocyclic ring contains 1-6
10 heteroatom(s) independently selected from the group consisting of O, N, and S; wherein any aromatic or tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain
15 alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-(C₁-C₆)-alkyl, thiocarbonyl, (C₁-C₆)-ester, thio-(C₁-C₆)-ester, (C₁-C₆)-alkoxy, (C₂-C₆)-
20 alkenoxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

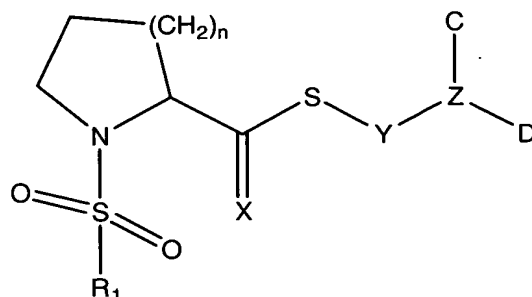
25 C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈
30 cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₄ alkyl, C₂-C₄ alkenyl, or hydroxy; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or

more position(s) with oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂; and

R₁ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of Ar, C₃-C₈ cycloalkyl, amino, halo, halo-(C₁-C₆)-alkyl, hydroxy, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, carbonyl, thiocarbonyl, (C₁-C₆)-ester, thio-(C₁-C₆)-ester, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenoxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)-alkyl, and sulfonyl, wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂.

148. A method as claimed in Claim 147 in which Ar is selected from the group consisting of phenyl, benzyl, naphthyl, indolyl, pyridyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl, purinyl, quinolinyl, isoquinolinyl, furyl, fluorenyl, thiophenyl, imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.

149. A method as claimed in Claim 141 in which the sensorineurotrophic compound is a compound of formula XXIII:



(XXIII)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

5 n is 1, 2 or 3;

 X is either O or S;

 Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is
 10 optionally substituted in one or more position(s) with amino, halo, halo-(C₁-C₆)-alkyl, thiocarbonyl, (C₁-C₆)-ester, thio-(C₁-C₆)-ester, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenoxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)-alkyl, sulfonyl,
 15 or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

 Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is
 20 optionally substituted in one or more position(s) with amino, halo, halo-(C₁-C₆)-alkyl, thiocarbonyl, (C₁-C₆)-ester, thio-(C₁-C₆)-ester, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenoxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)-alkyl, sulfonyl,
 25 or oxygen to form a carbonyl, or wherein any atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the
5 nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring
10 is either unsubstituted or substituted with one or more substituent(s); wherein the individual ring size is 5-8 members; wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; wherein any aromatic or
15 tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is
20 optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or cycloalkenyl is optionally substituted with C₁-C₄ alkyl,
25 C₂-C₄ alkenyl, or hydroxy; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂; and

30 R₁ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group

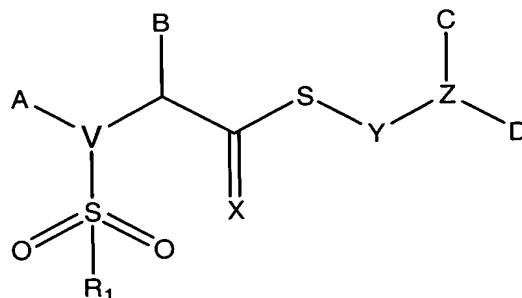
consisting of Ar, C₃-C₈ cycloalkyl, amino, halo, halo-(C₁-C₆)-alkyl, hydroxy, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, carbonyl, thiocarbonyl, (C₁-C₆)-ester, thio-(C₁-C₆)-ester, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenoxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)-alkyl, and sulfonyl, wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₃, S, SO, or SO₂.

10

150. A method as claimed in Claim 149 in which Ar is selected from the group consisting of phenyl, benzyl, naphthyl, indolyl, pyridyl, pyrrolyl, pyrrolidinyl, pyridinyl, pyrimidinyl, purinyl, quinolinyl, isoquinolinyl, furyl, fluorenyl, thiophenyl, imidazolyl, oxazolyl, thiazolyl, pyrazolyl, and thienyl.

151. A method as claimed in Claim 115 in which the sensorineurotrophic compound is a compound of formula XXIV:

20



(XXIV)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

25 V is CH, N, or S;

A and B, together with the nitrogen and carbon atoms to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring

containing, in addition to the nitrogen atom, one or more heteroatom(s) independently selected from the group consisting of O, S, SO, SO₂, N, NH, and NR₂;

X is either O or S;

5 Y is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano,
10 nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or
15 SO₂;

R₂ is selected from the group consisting of hydrogen, C₁-C₄ straight or branched chain alkyl, C₃-C₄ straight or branched chain alkenyl or alkynyl, and C₁-C₄ bridging alkyl wherein a bridge is formed between the
20 nitrogen and a carbon atom of said alkyl or alkenyl chain containing said heteroatom to form a ring, wherein said ring is optionally fused to an Ar group;

Ar is an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring
25 is either unsubstituted or substituted with one or more substituent(s); wherein the individual ring size is 5-8 members; wherein the heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S; wherein any aromatic or
30 tertiary alkyl amine is optionally oxidized to a corresponding N-oxide;

Z is a direct bond, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein any carbon atom of said alkyl or alkenyl is

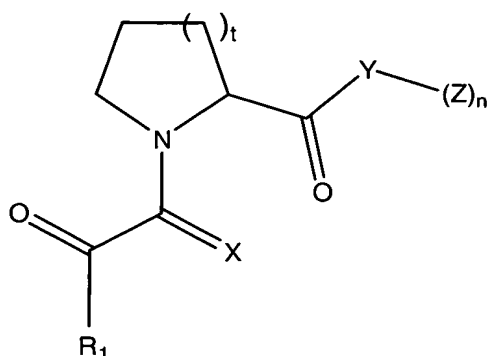
optionally substituted in one or more position(s) with amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, 5 sulfhydryl, thio-C₁-C₆-alkyl, sulfonyl, or oxygen to form a carbonyl, or wherein any atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂;

C and D are independently hydrogen, Ar, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or 10 branched chain alkenyl; wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group consisting of C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, carbonyl oxygen, and Ar; wherein said alkyl, alkenyl, cycloalkyl or 15 cycloalkenyl is optionally substituted with C₁-C₆-alkyl, C₂-C₆ alkenyl, hydroxy, amino, halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, or 20 sulfonyl; wherein any carbon atom of said alkyl or alkenyl is optionally substituted in one or more position(s) with oxygen to form a carbonyl; or wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂; and 25 R₁ is selected from the group consisting of Ar, C₃-C₈ cycloalkyl, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is optionally substituted with one or more substituent(s) independently selected from the group 30 consisting of Ar, C₃-C₈ cycloalkyl, amino, halo, halo-C₁-C₆-alkyl, hydroxy, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, carbonyl, thiocarbonyl, C₁-C₆-ester, thio-C₁-C₆-ester, C₁-C₆-alkoxy, C₂-C₆-alkenoxy, cyano, nitro, imino,

C₁-C₆-alkylamino, amino-C₁-C₆-alkyl, sulfhydryl, thio-C₁-C₆-alkyl, and sulfonyl, wherein any carbon atom of said alkyl or alkenyl is optionally replaced with O, NH, NR₂, S, SO, or SO₂.

5

152. A method as claimed in Claim 115 in which the sensorineurotrophic compound is a compound of formula XXV:



10

(XXV)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

R₁ is C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl or Ar₁, wherein said R₁ is unsubstituted or substituted with one or more substituents independently selected from the group consisting of C₁-C₆ alkyl, C₂-C₆ alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, and Ar₂;

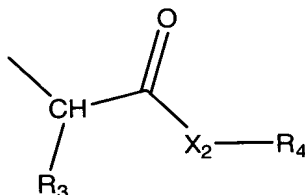
Ar₁ and Ar₂ are independently selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, wherein said Ar₁ is unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl,

C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

X is O, S, CH₂ or H₂;

Y is O or NR₂, wherein R₂ is a direct bond to a Z,
5 hydrogen or C₁-C₆ alkyl; and

each Z, independently, is C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said Z is substituted with one or more
substituent(s) independently selected from the group
10 consisting of Ar₁, C₃-C₈ cycloalkyl, and C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with C₃-C₈ cycloalkyl; or Z is the fragment



15 wherein:

R₃ is C₁-C₉ straight or branched chain alkyl which is unsubstituted or substituted with C₃-C₈ cycloalkyl or Ar₁;

X₂ is O or NR₅, wherein R₅ is selected from the group consisting of hydrogen, C₁-C₆ straight or branched chain
20 alkyl, and C₂-C₆ straight or branched chain alkenyl;

R₄ is selected from the group consisting of phenyl, benzyl, C₁-C₅ straight or branched chain alkyl, C₂-C₅ straight or branched chain alkenyl, C₁-C₅ straight or branched chain alkyl substituted with phenyl, and C₂-C₅
25 straight or branched chain alkenyl substituted with phenyl;

n is 1 or 2, and;

t is 1, 2 or 3.

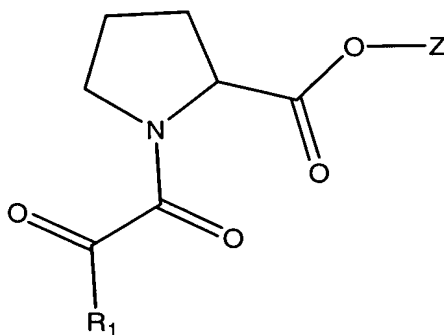
153. A method as claimed in Claim 152 in which the compound is selected from the group consisting of:

- 3-phenyl-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 5 3-phenyl-1-prop-2-(*E*)-enyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 3-(3,4,5-trimethoxyphenyl)-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidine-carboxylate;
- 3-(3,4,5-trimethoxyphenyl)-1-prop-2-(*E*)-enyl (2*S*)-1-
- 10 (3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 3-(4,5-dichlorophenyl)-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 3-(4,5-dichlorophenyl)-1-prop-2-(*E*)-enyl (2*S*)-1-
- (3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidine-carboxylate;
- 15 3-(4,5-methylenedioxyphenyl)-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidine-carboxylate;
- 3-(4,5-methylenedioxyphenyl)-1-prop-2-(*E*)-enyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 20 3-cyclohexyl-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 3-cyclohexyl-1-prop-2-(*E*)-enyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- (1*R*)-1,3-diphenyl-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-
- 25 dioxopentyl)-2-pyrrolidinecarboxylate;
- (1*R*)-1,3-diphenyl-1-prop-2-(*E*)-enyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidine-carboxylate;
- (1*R*)-1-cyclohexyl-3-phenyl-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidine-carboxylate;
- 30 (1*R*)-1-cyclohexyl-3-phenyl-1-prop-2-(*E*)-enyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;

- (1*R*)-1-(4,5-dichlorophenyl)-3-phenyl-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidine-carboxylate;
- 3-phenyl-1-propyl (2*S*)-1-(1,2-dioxo-2-cyclohexyl)ethyl-2-pyrrolidinecarboxylate;
- 5 3-phenyl-1-propyl (2*S*)-1-(1,2-dioxo-4-cyclohexyl)butyl-2-pyrrolidinecarboxylate;
- 3-phenyl-1-propyl (2*S*)-1-(1,2-dioxo-2-[2-furanyl])ethyl-2-pyrrolidinecarboxylate;
- 10 3-phenyl-1-propyl (2*S*)-1-(1,2-dioxo-2-[2-thienyl])ethyl-2-pyrrolidinecarboxylate;
- 3-phenyl-1-propyl (2*S*)-1-(1,2-dioxo-2-[2-thiazolyl])ethyl-2-pyrrolidinecarboxylate;
- 3-phenyl-1-propyl (2*S*)-1-(1,2-dioxo-2-phenyl)ethyl-2-pyrrolidinecarboxylate;
- 15 1,7-diphenyl-4-heptyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 3-phenyl-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxo-4-hydroxybutyl)-2-pyrrolidinecarboxylate;
- 20 3-phenyl-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxamide;
- 1-[1-(3,3-dimethyl-1,2-dioxopentyl)-L-proline]-L-phenylalanine ethyl ester;
- 1-[1-(3,3-dimethyl-1,2-dioxopentyl)-L-proline]-L-leucine ethyl ester;
- 25 1-[1-(3,3-dimethyl-1,2-dioxopentyl)-L-proline]-L-phenylglycine ethyl ester;
- 1-[1-(3,3-dimethyl-1,2-dioxopentyl)-L-proline]-L-phenylalanine phenyl ester;
- 30 1-[1-(3,3-dimethyl-1,2-dioxopentyl)-L-proline]-L-phenylalanine benzyl ester;
- 1-[1-(3,3-dimethyl-1,2-dioxopentyl)-L-proline]-L-isoleucine ethyl ester; and

pharmaceutically acceptable salts, esters, and solvates thereof.

154. A method as claimed in Claim 152 in which the
5 sensorineurotrophic compound is a compound of formula XXVI:



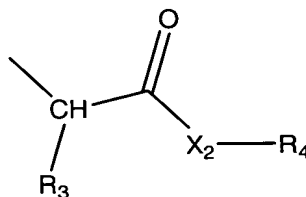
(XXVI)

or a pharmaceutically acceptable salt, ester, or solvate
10 thereof, wherein:

R₁ is C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl or Ar₁, wherein said R₁ is unsubstituted or substituted with one or more substituents
15 independently selected from the group consisting of C₁-C₆ alkyl, C₂-C₆ alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, and Ar₂;

Ar₁ and Ar₂ are independently selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, wherein said Ar₁ is unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro,
20 trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino;

Z is C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said Z is substituted with one or more substituent(s) independently selected from the group consisting of Ar₁, C₃-C₈ cycloalkyl, and C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with C₃-C₈ cycloalkyl; or Z is the fragment



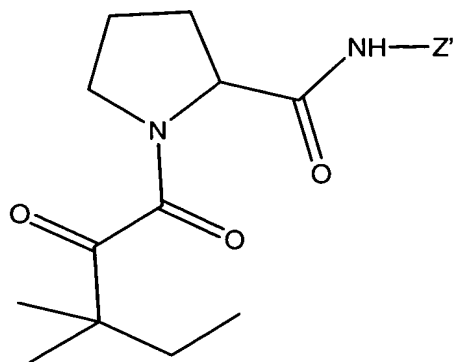
wherein:

10 R₃ is C₁-C₉ straight or branched chain alkyl which is unsubstituted or substituted with C₃-C₈ cycloalkyl or Ar₁;

X₂ is O or NR₅, wherein R₅ is selected from the group consisting of hydrogen, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl; and

15 R₄ is selected from the group consisting of phenyl, benzyl, C₁-C₅ straight or branched chain alkyl, C₂-C₅ straight or branched chain alkenyl, C₁-C₅ straight or branched chain alkyl substituted with phenyl, and C₂-C₅ straight or branched chain alkenyl substituted with
20 phenyl.

155. A method as claimed in Claim 115 in which the sensorineurotrophic agent may be a compound of formula XXVII:



or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

$$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH} - \text{C} - \text{X}_2 - \text{R}_4 \\ | \\ \text{R}_3 \end{array}$$

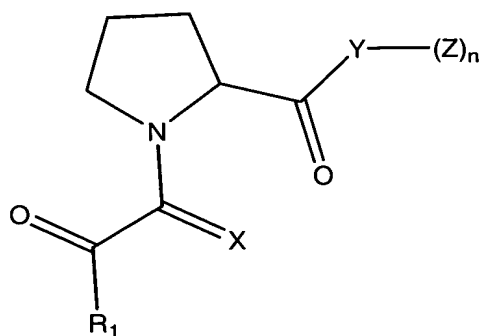
R₃ is C₁-C₉ straight or branched chain alkyl or unsubstituted Ar₁, wherein said alkyl is unsubstituted or substituted with C₃-C₈ cycloalkyl or Ar₁;

R₄ is selected from the group consisting of phenyl, benzyl, C₁-C₅ straight or branched chain alkyl, C₂-C₅ straight or branched chain alkenyl, C₁-C₅ straight or branched chain alkyl substituted with phenyl, and C₂-C₅ straight or branched chain alkenyl substituted with phenyl; and

Ar₁ is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, wherein said Ar₁ is unsubstituted or substituted with one or more substituent(s) independently

selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, and amino.

156. A method as claimed in Claim 152 in which the sensorineurotrophic agent may also be a compound of formula XXVIII:



(XXVIII)

wherein:

R₁ is C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₃-C₆ cycloalkyl or Ar₁, wherein said alkyl or alkenyl is unsubstituted or substituted with C₃-C₆ cycloalkyl or Ar₂;

Ar₁ and Ar₂ are independently selected from the group consisting of 2-furyl, 2-thienyl, and phenyl;

X is selected from the group consisting of oxygen and sulfur;

Y is oxygen or NR₂, wherein R₂ is a direct bond to a Z, hydrogen or C₁-C₆ alkyl;

each Z, independently, is hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said Z is substituted with one or more substituent(s) independently selected from the group consisting of 2-furyl, 2-thienyl, C₃-C₆ cycloalkyl, pyridyl, and phenyl, each having one or more

substituent(s) independently selected from the group consisting of hydrogen and C₁-C₄ alkoxy; and n is 1 or 2.

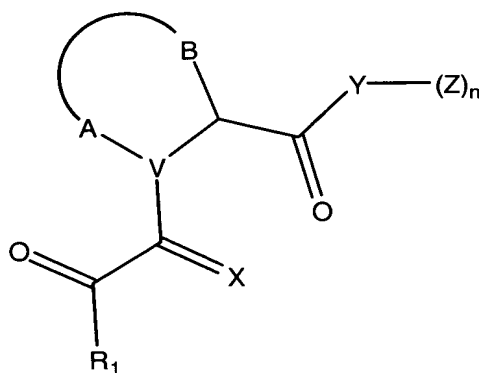
- 5 157. A method as claimed in Claim 156 in which the compound is selected from the group consisting of:
- 3-(2,5-dimethoxyphenyl)-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 3-(2,5-dimethoxyphenyl)-1-prop-2-(*E*)-enyl (2*S*)-1-
10 (3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidine-carboxylate;
- 2-(3,4,5-trimethoxyphenyl)-1-ethyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 3-(3-pyridyl)-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 15 3-(2-pyridyl)-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 3-(4-pyridyl)-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 3-phenyl-1-propyl (2*S*)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate;
- 20 3-phenyl-1-propyl (2*S*)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate;
- 3-(3-pyridyl)-1-propyl (2*S*)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidine-carboxylate;
- 25 3-(3-pyridyl)-1-propyl (2*S*)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate;
- 3,3-diphenyl-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate;
- 3-(3-pyridyl)-1-propyl (2*S*)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate;
- 30 3-(3-pyridyl)-1-propyl (2*S*)-N-([2-thienyl]glyoxyl)pyrrolidinecarboxylate;
- 3,3-diphenyl-1-propyl (2*S*)-1-(3,3-dimethyl-1,2-dioxobutyl)-2-pyrrolidinecarboxylate;

3,3-diphenyl-1-propyl (2*S*)-1-cyclohexylglyoxyl-
2-pyrrolidinecarboxylate;

3,3-diphenyl-1-propyl (2*S*)-1-(2-thienyl)glyoxyl-2-
pyrrolidinecarboxylate; and

5 pharmaceutically acceptable salts, esters, and
solvates thereof.

158. A method as claimed in Claim 115 in which the
sensorineurotrophic compound is a compound of formula
10 XXIX:



(XXIX)

or a pharmaceutically acceptable salt, ester, or solvate
thereof, wherein:

15 V is CH, N, or S;

A and B, together with V and the carbon atom to
which they are respectively attached, form a 5-7 membered
saturated or unsaturated heterocyclic ring containing, in
addition to V, one or more heteroatom(s) independently
20 selected from the group consisting of O, S, SO, SO₂, N,
NH, and NR;

R is either C₁-C₉ straight or branched chain alkyl,
C₂-C₉ straight or branched chain alkenyl, C₃-C₉
cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, wherein R is
25 either unsubstituted or substituted with one or more
substituent(s) independently selected from the group
consisting of halo, halo-(C₁-C₆)-alkyl, carbonyl,

carboxy, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, thio-(C₁-C₆)-alkyl, alkylthio, sulfhydryl, amino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, aminocarboxyl, and Ar₂;

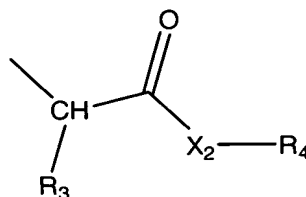
R₁ is C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl or Ar₁, wherein said R₁ is unsubstituted or substituted with one or more substituents independently selected from the group consisting of C₁-C₆ alkyl, C₂-C₆ alkenyl, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, hydroxy, and Ar₂;

Ar₁ and Ar₂ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted with one or more substituent(s); wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S;

X is O, S, CH₂ or H₂;

Y is O or NR₂, wherein R₂ is a direct bond to a Z, hydrogen or C₁-C₆ alkyl; and

each Z, independently, is C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said Z is substituted with one or more substituent(s) independently selected from the group consisting of Ar₁, C₃-C₈ cycloalkyl, and C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl substituted with C₃-C₈ cycloalkyl; or Z is the fragment



wherein:

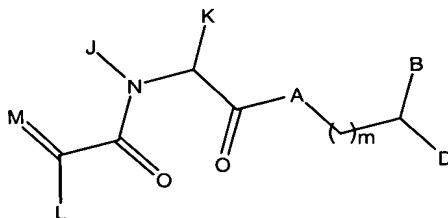
R₃ is C₁-C₉ straight or branched chain alkyl which is unsubstituted or substituted with C₃-C₈ cycloalkyl or Ar₁;

5 X₂ is O or NR₅, wherein R₅ is selected from the group consisting of hydrogen, C₁-C₆ straight or branched chain alkyl, and C₂-C₆ straight or branched chain alkenyl; and

R₄ is selected from the group consisting of phenyl,
10 benzyl, C₁-C₅ straight or branched chain alkyl, C₂-C₅ straight or branched chain alkenyl, C₁-C₅ straight or branched chain alkyl substituted with phenyl, and C₂-C₅ straight or branched chain alkenyl substituted with phenyl; and,
15 n is 1 or 2.

159. A method as claimed in Claim 115 in which the sensorineurotrophic compound is a compound of formula (LV):

20



(LV)

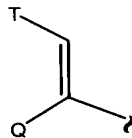
or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

25

m is 0-3;

A is CH₂, O, NH, or N-(C₁-C₄ alkyl);

B and D are independently hydrogen, Ar, C₅-C₇ cycloalkyl substituted C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, C₅-C₇ cycloalkenyl substituted C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, or Ar substituted C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, wherein in each case, one or two carbon atom(s) of said alkyl or alkenyl may be substituted with one or two heteroatom(s) independently selected from the group consisting of oxygen, sulfur, SO, and SO₂ in chemically reasonable substitution patterns, or



15

wherein Q is hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; and

20 T is Ar or C₅-C₇ cycloalkyl substituted at positions 3 and 4 with substituents independently selected from the group consisting of hydrogen, hydroxy, O-(C₁-C₄ alkyl), O-(C₂-C₄ alkenyl), and carbonyl;

25 Ar is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl, monocyclic and bicyclic heterocyclic ring systems with individual ring sizes being 5 or 6 which contain in

30 either or both rings a total of 1-4 heteroatom(s) independently selected from the group consisting of oxygen, nitrogen and sulfur; wherein Ar contains 1-3

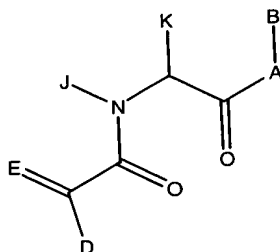
substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, hydroxymethyl, nitro, CF₃, trifluoromethoxy, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, O-
5 (C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄ straight or branched chain alkenyl), O-benzyl, O-phenyl, amino, 1,2-methylenedioxy, carbonyl, and phenyl;

L is either hydrogen or U; M is either oxygen or CH-U, provided that if L is hydrogen, then M is CH-U, or if
10 M is oxygen then L is U;

U is hydrogen, O-(C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄ straight or branched chain alkenyl), C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₅-C₇ cycloalkyl, C₅-C₇
15 cycloalkenyl substituted with C₁-C₄ straight or branched chain alkyl or C₂-C₄ straight or branched chain alkenyl, (C₁-C₄ alkyl or C₂-C₄ alkenyl)-Ar, or Ar;

J is hydrogen, C₁ or C₂ alkyl, or benzyl; K is C₁-C₄ straight or branched chain alkyl, benzyl or
20 cyclohexylmethyl; or J and K are taken together to form a 5-7 membered heterocyclic ring which is substituted with oxygen, sulfur, SO, or SO₂.

160. A method as claimed in Claim 115 in which the
25 sensorineurotrophic compound is a compound of formula (LVI):

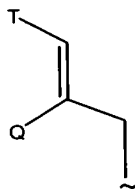


(LVI)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

A is O, NH, or N-(C₁-C₄ alkyl);

5 B is hydrogen, CHL-Ar, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl, Ar substituted C₁-C₆ alkyl or C₂-C₆ alkenyl, or



10

wherein L and Q are independently hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; and
15 T is Ar or C₅-C₇ cyclohexyl substituted at positions 3 and 4 with substituents independently selected from the group consisting of hydrogen, hydroxy, O-(C₁-C₄ alkyl), O-(C₂-C₄ alkenyl), and carbonyl;
20

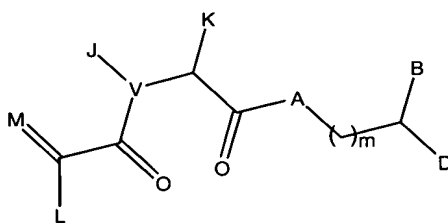
Ar is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl having 1-3 substituent(s) independently selected from the group
25 consisting of hydrogen, halo, hydroxy, nitro, CF₃, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, O-(C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄ straight or branched chain alkenyl), O-benzyl, O-phenyl, amino, and phenyl.

D is hydrogen or U; E is oxygen or CH-U, provided that if D is hydrogen, then E is CH-U, or if E is oxygen, then D is U;

U is hydrogen, O-(C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄ straight or branched chain alkenyl), C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₅-C₇-cycloalkyl, C₅-C₇ cycloalkenyl substituted with C₁-C₄ straight or branched chain alkyl or C₂-C₄ straight or branched chain alkenyl, 2-indolyl, 3-indolyl, (C₁-C₄ alkyl or C₂-C₄ alkenyl)-Ar, or Ar;

J is hydrogen, C₁ or C₂ alkyl, or benzyl; K is C₁-C₄ straight or branched chain alkyl, benzyl or cyclohexylethyl; or J and K are taken together to form a 5-7 membered heterocyclic ring which is substituted with oxygen, sulfur, SO, or SO₂.

161. A method as claimed in Claim 115 in which the sensorineurotrophic compound is a compound of formula LVIII:



(LVIII)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

V is CH, N, or S;

J and K, taken together with V and the carbon atom to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing, in addition to V, one or more heteroatom(s)

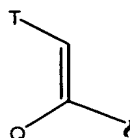
selected from the group consisting of O, S, SO, SO₂, N, NH, and NR;

R is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₉ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, wherein R is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, halo(C₁-C₆)-alkyl, carbonyl, carboxy, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, thio-(C₁-C₆)-alkyl, (C₁-C₆)-alkylthio, sulfhydryl, amino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, aminocarboxyl, and Ar₂;

Ar₁ and Ar₂ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring; wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S;

A is CH₂, O, NH, or N-(C₁-C₄ alkyl);

B and D are independently hydrogen, Ar, C₅-C₇ cycloalkyl substituted C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, C₅-C₇ cycloalkenyl substituted C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, or Ar substituted C₁-C₆ straight or branched chain alkyl or C₂-C₆ straight or branched chain alkenyl, wherein in each case, one or two carbon atom(s) of said alkyl or alkenyl may be substituted with one or two heteroatom(s) independently selected from the group consisting of oxygen, sulfur, SO, and SO₂ in chemically reasonable substitution patterns, or



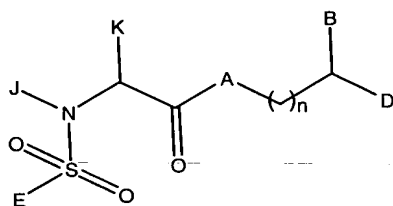
- wherein Q is hydrogen, C₁-C₆ straight or
5 branched chain alkyl, or C₂-C₆ straight or
branched chain alkenyl; and
T is Ar or C₅-C₇ cycloalkyl substituted at
positions 3 and 4 with substituents
independently selected from the group
10 consisting of hydrogen, hydroxy, O-(C₁-C₄
alkyl), O-(C₂-C₄ alkenyl), and carbonyl;
Ar is selected from the group consisting of 1-
naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 3-
thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl,
15 monocyclic and bicyclic heterocyclic ring systems with
individual ring sizes being 5 or 6 which contain in
either or both rings a total of 1-4 heteroatom(s)
independently selected from the group consisting of
oxygen, nitrogen and sulfur; wherein Ar contains 1-3
20 substituent(s) independently selected from the group
consisting of hydrogen, halo, hydroxy, hydroxymethyl,
nitro, CF₃, trifluoromethoxy, C₁-C₆ straight or branched
chain alkyl, C₂-C₆ straight or branched chain alkenyl, O-
(C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄
25 straight or branched chain alkenyl), O-benzyl, O-phenyl,
amino, 1,2-methylenedioxy, carbonyl, and phenyl;
L is either hydrogen or U; M is either oxygen or CH-
U, provided that if L is hydrogen, then M is CH-U, or if
M is oxygen then L is U;
30 U is hydrogen, O-(C₁-C₄ straight or branched chain
alkyl), O-(C₂-C₄ straight or branched chain alkenyl), C₁-
C₆ straight or branched chain alkyl, C₂-C₆ straight or

branched chain alkenyl, C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl substituted with C₁-C₄ straight or branched chain alkyl or C₂-C₄ straight or branched chain alkenyl, (C₁-C₄ alkyl or C₂-C₄ alkenyl)-Ar, or Ar;

- 5 J is hydrogen, C₁ or C₂ alkyl, or benzyl; K is C₁-C₄ straight or branched chain alkyl, benzyl or cyclohexylmethyl; or J and K are taken together to form a 5-7 membered heterocyclic ring which is substituted with oxygen, sulfur, SO, or SO₂.

10

162. A method as claimed in Claim 115 in which the sensorineurotrophic compound is a compound of the formula (LIX):

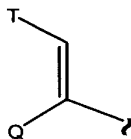


15

(LIX)

or a pharmaceutically acceptable salt, ester or solvate thereof, wherein:

- A is CH₂, O, NH, or N-(C₁-C₄ alkyl);
- 20 B and D are independently Ar, hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is unsubstituted or substituted with C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl or Ar, and wherein one or two carbon atom(s)
- 25 of said alkyl or alkenyl may be substituted with one or two heteroatom(s) independently selected from the group consisting of O, S, SO, and SO₂ in chemically reasonable substitution patterns, or



wherein Q is hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; and

5 T is Ar or C₅-C₇ cycloalkyl substituted at positions 3 and 4 with one or more substituent(s) independently selected from the group consisting of hydrogen, hydroxy, O-(C₁-C₄ alkyl), O-(C₂-C₄ alkenyl), and carbonyl;

10 provided that both B and D are not hydrogen;

Ar is selected from the group consisting of phenyl, 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, monocyclic and bicyclic heterocyclic ring systems with individual ring
15 sizes being 5 or 6 which contain in either or both rings a total of 1-4 heteroatoms independently selected from the group consisting of O, N, and S; wherein Ar contains 1-3 substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro,

20 trifluoromethyl, trifluoromethoxy, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, O-(C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄ straight or branched chain alkenyl), O-benzyl, O-phenyl, 1,2-methylenedioxy, amino, carboxyl, and phenyl;

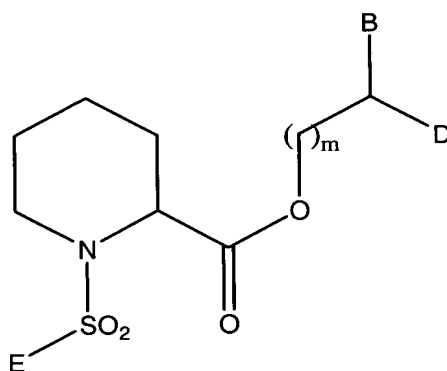
25 E is C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl substituted with C₁-C₄ straight or branched chain alkyl or C₂-C₄ straight or branched chain alkenyl, (C₂-C₄ alkyl or C₂-C₄ alkenyl)-Ar, or Ar;

30 J is hydrogen, C₁ or C₂ alkyl, or benzyl; K is C₁-C₄ straight or branched chain alkyl, benzyl, or cyclohexylmethyl; or J and K are taken together to form a

5-7 membered heterocyclic ring which is substituted with
O, S, SO, or SO₂;

n is 0 to 3.

- 5 163. A method as claimed in Claim 115 in which the
sensorineurotrophic compound is a compound of Formula
LXI:

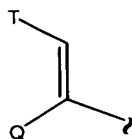


(LXI)

10

or a pharmaceutically acceptable salt, ester or solvate
thereof, wherein:

- B and D are independently Ar, hydrogen, C₁-C₆
straight or branched chain alkyl, or C₂-C₆ straight or
15 branched chain alkenyl, wherein said alkyl or alkenyl is
unsubstituted or substituted with C₅-C₇ cycloalkyl, C₅-C₇
cycloalkenyl or Ar, and wherein one or two carbon atom(s)
of said alkyl or alkenyl may be substituted with one or
two heteroatom(s) independently selected from the group
20 consisting of O, S, SO, and SO₂ in chemically reasonable
substitution patterns, or



wherein Q is hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl; and

5 T is Ar or C₅-C₇ cycloalkyl substituted at positions 3 and 4 with one or more substituent(s) independently selected from the group consisting of hydrogen, hydroxy, O-(C₁-C₄ alkyl), O-(C₂-C₄ alkenyl), and carbonyl;

provided that both B and D are not hydrogen;

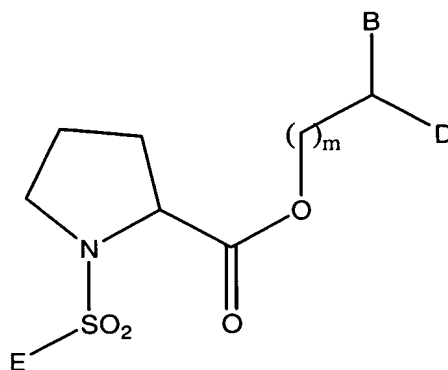
10 Ar is selected from the group consisting of phenyl, 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, monocyclic and bicyclic heterocyclic ring systems with individual ring sizes being 5 or 6 which contain in either or both rings
15 a total of 1-4 heteroatoms independently selected from the group consisting of O, N, and S; wherein Ar contains 1-3 substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, trifluoromethoxy, C₁-C₆ straight or
20 branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, O-(C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄ straight or branched chain alkenyl), O-benzyl, O-phenyl, 1,2-methylenedioxy, amino, carboxyl, and phenyl;

E is C₁-C₆ straight or branched chain alkyl, C₂-C₆
25 straight or branched chain alkenyl, C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl substituted with C₁-C₄ straight or branched chain alkyl or C₂-C₄ straight or branched chain alkenyl, (C₂-C₄ alkyl or C₂-C₄ alkenyl)-Ar, or Ar; and

m is 0 to 3.

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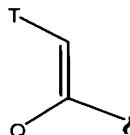
164. A method as claimed in Claim 115 in which the sensorineurotrophic compound is a compound of Formula (LXII):



(LXII)

or a pharmaceutically acceptable salt thereof, wherein:

B and D are independently Ar, hydrogen, $\text{C}_1\text{-C}_6$ straight or branched chain alkyl, or $\text{C}_2\text{-C}_6$ straight or branched chain alkenyl, wherein said alkyl or alkenyl is unsubstituted or substituted with $\text{C}_5\text{-C}_7$ cycloalkyl, $\text{C}_5\text{-C}_7$ cycloalkenyl, or Ar, and wherein one or two carbon atom(s) of said alkyl or alkenyl may be substituted with one or two heteroatom(s) independently selected from the group consisting of O, S, SO, and SO_2 in chemically reasonable substitution patterns, or



15

wherein Q is hydrogen, $\text{C}_1\text{-C}_6$ straight or branched chain alkyl, or $\text{C}_2\text{-C}_6$ straight or branched chain alkenyl; and

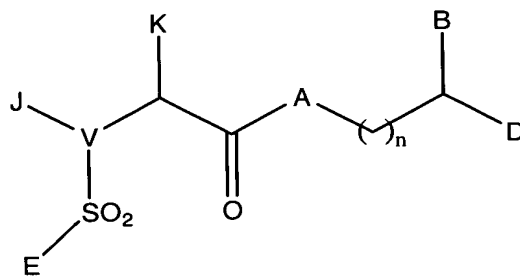
T is Ar or $\text{C}_5\text{-C}_7$ cycloalkyl substituted at positions 3 and 4 with one or more substituent(s) independently selected from the group consisting of hydrogen, hydroxy, $\text{O-(C}_1\text{-C}_4\text{ alkyl)}$, $\text{O-(C}_2\text{-C}_4\text{ alkenyl)}$, and carbonyl; provided that both B and D are not hydrogen;

Ar is selected from the group consisting of phenyl, 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, monocyclic and bicyclic heterocyclic ring systems with individual ring sizes being 5 or 6 which contain in either or both rings a total of 1-4 heteroatoms independently selected from the group consisting of O, N, and S; wherein Ar contains 1-3 substituent(s) independently selected from the group consisting of hydrogen, halo, hydroxy, nitro, trifluoromethyl, trifluoromethoxy, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, O-(C₁-C₄ straight or branched chain alkyl), O-(C₂-C₄ straight or branched chain alkenyl), O-benzyl, O-phenyl, 1,2-methylenedioxy, amino, carboxyl, and phenyl;

E is C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl substituted with C₁-C₄ straight or branched chain alkyl or C₂-C₄ straight or branched chain alkenyl, (C₂-C₄ alkyl or C₂-C₄ alkenyl)-Ar, or Ar; and

m is 0 to 3.

165. A method as claimed in Claim 115 in which the sensorineurotrophic compound is a compound of Formula LXIII:



(LXIII)

or a pharmaceutically acceptable salt, ester, or solvate thereof, wherein:

V is CH, N, or S;

J and K, taken together with V and the carbon atom to which they are respectively attached, form a 5-7 membered saturated or unsaturated heterocyclic ring containing, in addition to V, one or more heteroatom(s) selected from the group consisting of O, S, SO, SO₂, N, NH, and NR;

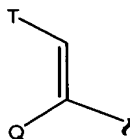
R is either C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, C₃-C₉ cycloalkyl, C₅-C₇ cycloalkenyl, or Ar₁, wherein R is either unsubstituted or substituted with one or more substituent(s) independently selected from the group consisting of halo, halo(C₁-C₆)-alkyl, carbonyl, carboxy, hydroxy, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl, C₁-C₄ alkoxy, C₂-C₄ alkenyloxy, phenoxy, benzyloxy, thio-(C₁-C₆)-alkyl, (C₁-C₆)-alkylthio, sulfhydryl, amino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, aminocarboxyl, and Ar₂;

Ar₁ and Ar₂ are independently an alicyclic or aromatic, mono-, bi- or tricyclic, carbo- or heterocyclic ring; wherein the individual ring size is 5-8 members; wherein said heterocyclic ring contains 1-6 heteroatom(s) independently selected from the group consisting of O, N, and S;

A is CH₂, O, NH, or N-(C₁-C₄ alkyl);

B and D are independently Ar, hydrogen, C₁-C₆ straight or branched chain alkyl, or C₂-C₆ straight or branched chain alkenyl, wherein said alkyl or alkenyl is unsubstituted or substituted with C₅-C₇ cycloalkyl, C₅-C₇ cycloalkenyl or Ar, and wherein one or two carbon atom(s) of said alkyl or alkenyl may be substituted with one or two heteroatom(s) independently selected from the group

consisting of O, S, SO, and SO₂ in chemically reasonable substitution patterns, or



- 5 wherein Q is hydrogen, C₁-C₆ straight or
 branched chain alkyl, or C₂-C₆ straight or
 branched chain alkenyl; and
 T is Ar or C₅-C₇ cycloalkyl substituted at
 positions 3 and 4 with one or more
10 substituent(s) independently selected from the
 group consisting of hydrogen, hydroxy, O-(C₁-C₄
 alkyl), O-(C₂-C₄ alkenyl), and carbonyl;

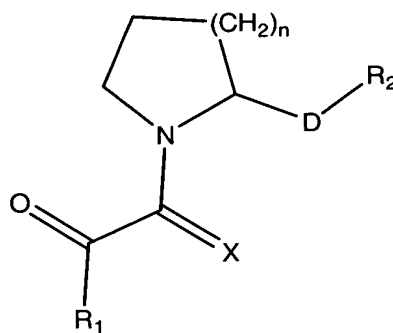
provided that both B and D are not hydrogen;

- Ar is selected from the group consisting of phenyl,
15 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 3-
 thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, monocyclic and
 bicyclic heterocyclic ring systems with individual ring
 sizes being 5 or 6 which contain in either or both rings
 a total of 1-4 heteroatoms independently selected from
20 the group consisting of O, N, and S; wherein Ar contains
 1-3 substituent(s) independently selected from the group
 consisting of hydrogen, halo, hydroxy, nitro,
 trifluoromethyl, trifluoromethoxy, C₁-C₆ straight or
 branched chain alkyl, C₂-C₆ straight or branched chain
25 alkenyl, O-(C₁-C₄ straight or branched chain alkyl), O-
 (C₂-C₄ straight or branched chain alkenyl), O-benzyl, O-
 phenyl, 1,2-methylenedioxy, amino, carboxyl, and phenyl;

- E is C₁-C₆ straight or branched chain alkyl, C₂-C₆
 straight or branched chain alkenyl, C₅-C₇ cycloalkyl, C₅-
30 C₇ cycloalkenyl substituted with C₁-C₄ straight or
 branched chain alkyl or C₂-C₄ straight or branched chain
 alkenyl, (C₂-C₄ alkyl or C₂-C₄ alkenyl)-Ar, or Ar;

J is hydrogen, C₁ or C₂ alkyl, or benzyl; K is C₁-C₄ straight or branched chain alkyl, benzyl, or cyclohexylmethyl; or J and K are taken together to form a 5-7 membered heterocyclic ring which is substituted with
5 O, S, SO, or SO₂;
n is 0 to 3.

166. A method as claimed in Claim 115 in which the sensorineurotrophic compound is a compound of formula
10 (LXIV):



(LXIV)

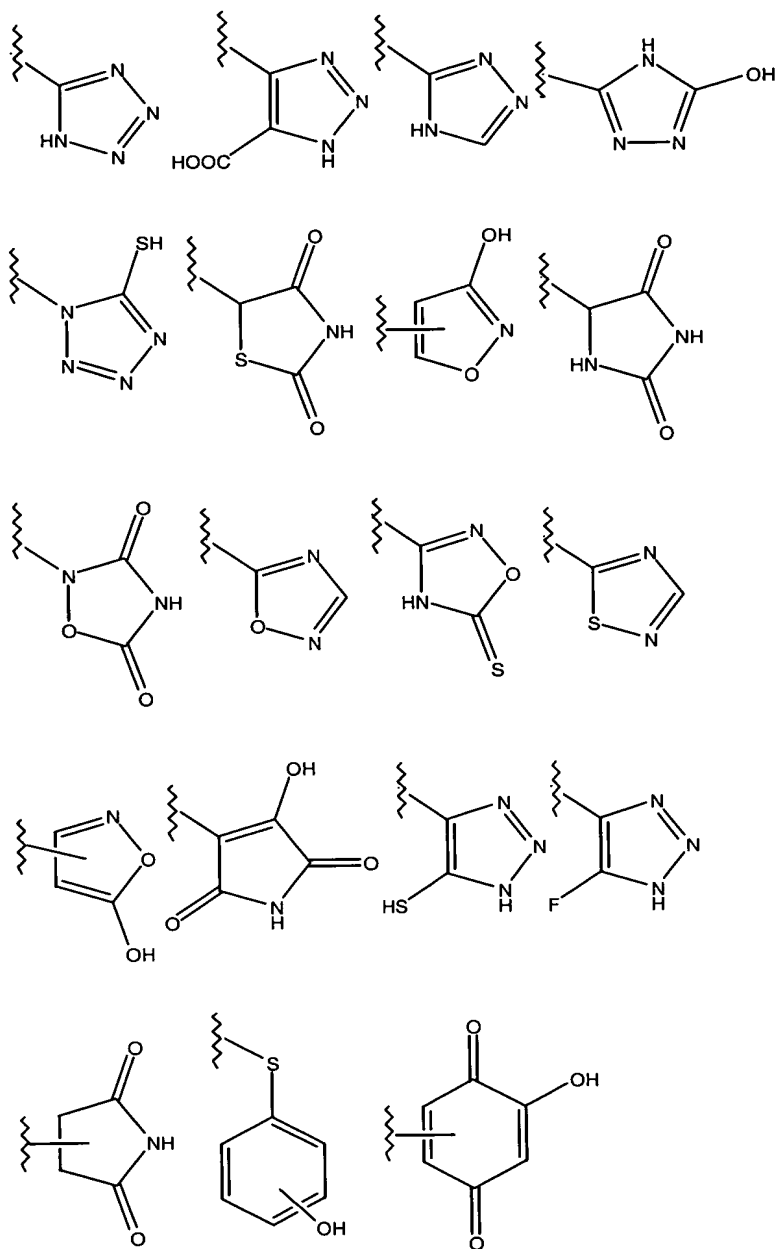
in which:

- n is 1-3;
15 X is either O or S;
R₁ is selected from the group consisting of C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, aryl, heteroaryl, carbocycle, or heterocycle;
20 D is a bond, or a C₁-C₁₀ straight or branched chain alkyl, C₂-C₁₀ alkenyl or C₂-C₁₀ alkynyl; and
R₂ is a carboxylic acid or a carboxylic acid isostere; or a pharmaceutically acceptable salt, ester, or solvate thereof.

25

167. A method as claimed in Claim 166 in which:

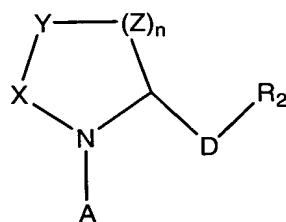
R₂ is selected from the group:



- COOH, -SO₃H, -SO₂HNR³, -PO₂(R³)₂, -CN, -PO₃(R³)₂, -OR³,
 -SR³, -NHCOR³, -N(R³)₂, -CON(R³)₂, -CONH(O)R³, -CONHNHSO₂R³,
 5 -COHNSO₂R³, and -CONR³CN wherein R³ is hydrogen, hydroxy,
 halo, halo-C₁-C₆-alkyl, thiocarbonyl, C₁-C₆-alkoxy, C₂-C₆-
 alkenoxy, C₁-C₆-alkylaryloxy, aryloxy, aryl- C₁-C₆-
 alkyloxy, cyano, nitro, imino, C₁-C₆-alkylamino, amino-
 C₁-C₆-alkyl, sulfhydryl, thio- C₁-C₆-alkyl, C₁-C₆-

alkylthio, sulfonyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl or alkynyl, aryl, heteroaryl, carbocycle, heterocycle, and CO₂R⁴ where R⁴ is hydrogen or C₁-C₉ straight or branched chain alkyl or alkenyl.

168. A method as claimed in Claim 115 in which the sensorineurotrophic compound is a compound of formula (LXV):



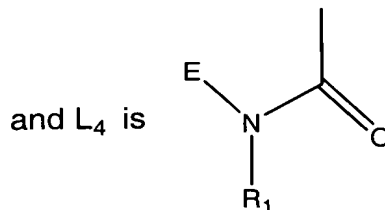
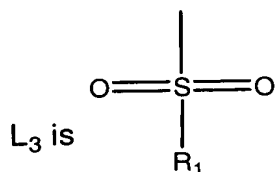
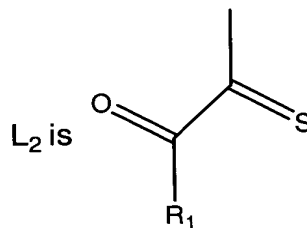
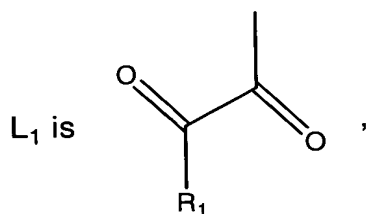
(LXV)

in which

X, Y, and Z are independently selected from the group consisting of C, O, S, or N, provided that X, Y, and Z are not all C;

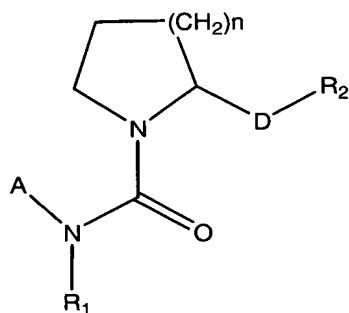
n is 1-3;

A is selected from the group consisting of L₁, L₂, L₃, or L₄, in which



and R_1 and E, independently, are selected from the group consisting of hydrogen, C_1 - C_9 straight or branched chain alkyl, C_2 - C_9 straight or branched chain alkenyl, aryl, heteroaryl, carbocycle, and heterocycle;
5 R_2 is carboxylic acid or a carboxylic acid isostere; wherein said alkyl, alkenyl, alkynyl, aryl, heteroaryl, carbocycle, heterocycle, or carboxylic acid isostere is optionally substituted with one or more substituents
10 selected from R^3 , where
 R^3 is hydrogen, hydroxy, halo, halo(C_1 - C_6)-alkyl, thiocarbonyl, (C_1 - C_6)-alkoxy, (C_2 - C_6)-alkenoxy, (C_1 - C_6)-alkylaryloxy, aryloxy, aryl-(C_1 - C_6)-alkyloxy, cyano, nitro, imino, (C_1 - C_6)-alkylamino, amino-(C_1 - C_6)-alkyl,
15 sulfhydryl, thio-(C_1 - C_6)-alkyl, (C_1 - C_6)-alkylthio, sulfonyl, C_1 - C_6 straight or branched chain alkyl, C_2 - C_6 straight or branched chain alkenyl or alkynyl, aryl, heteroaryl, carbocycle, heterocycle, or CO_2R^4 where R^4 is hydrogen or C_1 - C_9 straight or branched chain alkyl or
20 alkenyl;
or a pharmaceutically acceptable salt, ester, or solvate thereof.

169. A method as claimed in Claim 115 in which the
25 sensorineurotrophic compound is a compound of formula (LXVI):



(LXVI)

in which:

n is 1-3;

R₁ and A are independently selected from the group consisting of hydrogen, C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, aryl, heteroaryl, carbocycle, and heterocycle;

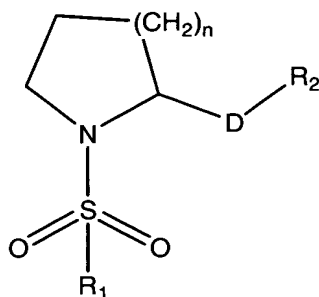
D is a bond, or a C₁-C₁₀ straight or branched chain alkyl, C₂-C₁₀ alkenyl or C₂-C₁₀ alkynyl;

R₂ is carboxylic acid or a carboxylic acid isostere; wherein said alkyl, alkenyl, alkynyl, aryl, heteroaryl, carbocycle, heterocycle, or carboxylic acid isostere is optionally substituted with one or more substituents selected from R³, where

R³ is hydrogen, hydroxy, halo, halo(C₁-C₆)-alkyl, thiocarbonyl, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenoxy, (C₁-C₆)-alkylaryloxy, aryloxy, aryl-(C₁-C₆)-alkyloxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)-alkyl, (C₁-C₆)-alkylthio, sulfonyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl or alkynyl, aryl, heteroaryl, carbocycle, heterocycle, and CO₂R⁴ where R⁴ is hydrogen or C₁-C₉ straight or branched chain alkyl or alkenyl;

or a pharmaceutically acceptable salt, ester, or solvate thereof.

170. A method as claimed in Claim 115 in which the sensorineurotrophic compound is a compound of formula (LXVII):



(LXVII)

in which:

n is 1-3;

5 R₁ is selected from the group consisting of hydrogen, C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl, aryl, heteroaryl, carbocycle, or heterocycle;

10 D is a bond, or a C₁-C₁₀ straight or branched chain alkyl, C₂-C₁₀ alkenyl or C₂-C₁₀ alkynyl;

 R₂ is a carboxylic acid or a carboxylic acid isostere;

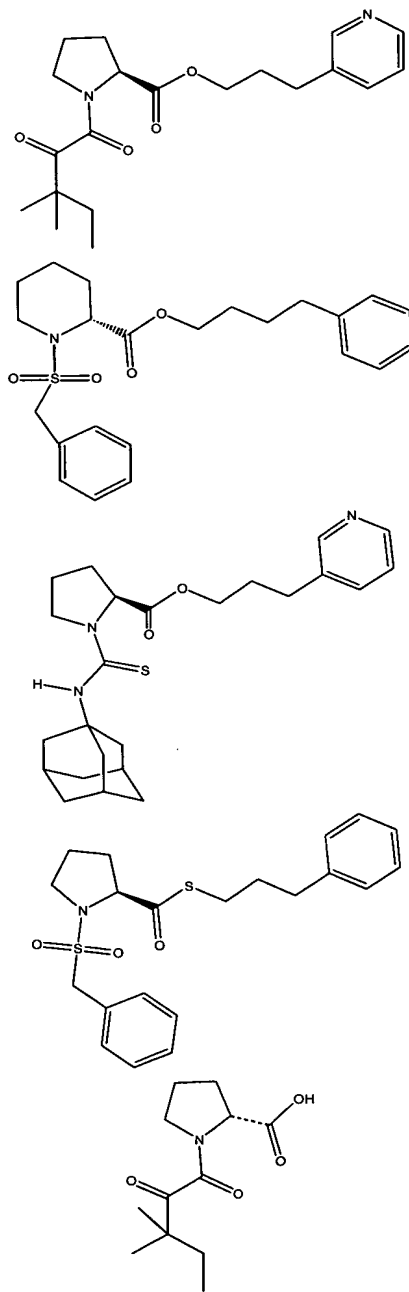
15 wherein said alkyl, alkenyl, alkynyl, aryl, heteroaryl, carbocycle, heterocycle, or carboxylic acid isostere is optionally substituted with one or more substituents selected from R³, where

20 R³ is hydrogen, hydroxy, halo, , halo-(C₁-C₆)-alkoxy, thiocarbonyl, (C₁-C₆)-alkoxy, (C₂-C₆)-alkenyloxy, (C₁-C₆)-alkylaryloxy, aryloxy, aryl-(C₁-C₆)-alkyloxy, cyano, nitro, imino, (C₁-C₆)-alkylamino, amino-(C₁-C₆)-alkyl, sulfhydryl, thio-(C₁-C₆)alkyl, (C₁-C₆)-alkylthio, sulfonyl, C₁-C₆ straight or branched chain alkyl, C₂-C₆ straight or branched chain alkenyl or alkynyl, aryl, heteroaryl, carbocycle, heterocycle, or CO₂R⁴ where R⁴ is

25 hydrogen or C₁-C₉ straight or branched chain alkyl or alkenyl;

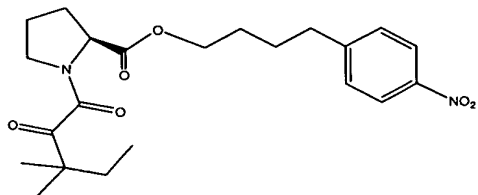
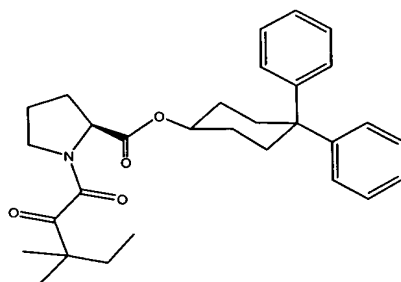
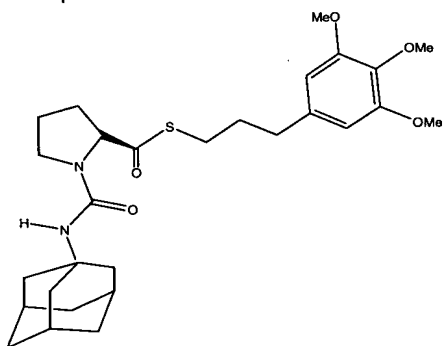
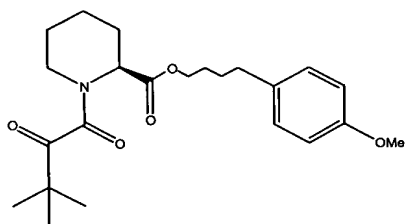
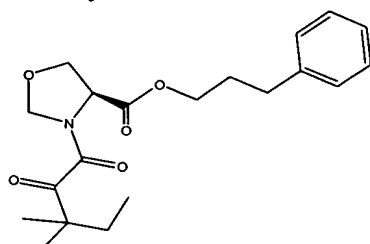
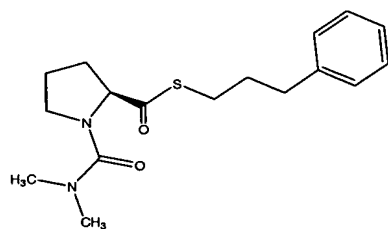
or a pharmaceutically acceptable salt, ester or solvate thereof.

171. A method for the prevention or treatment of a vestibular disorder which comprises administering to a warm-blooded animal a sensorineurotrophic compound
- 5 selected from the group comprising:



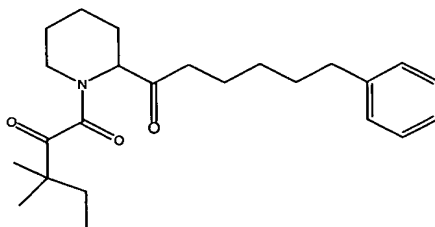
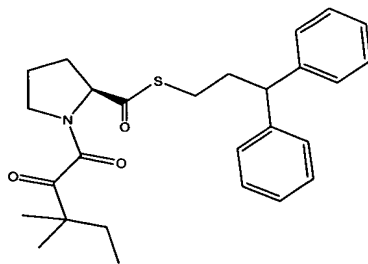
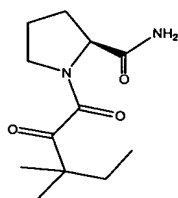
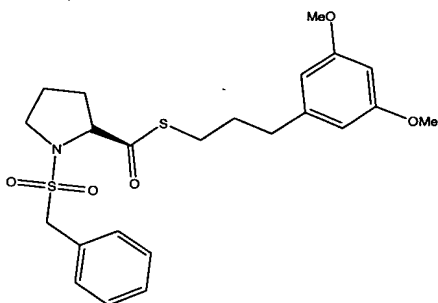
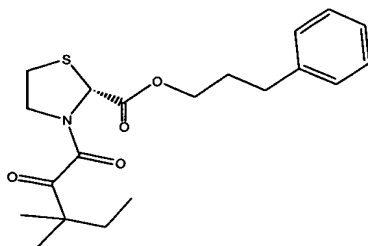
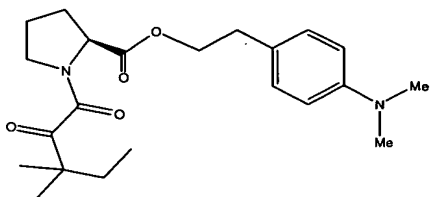
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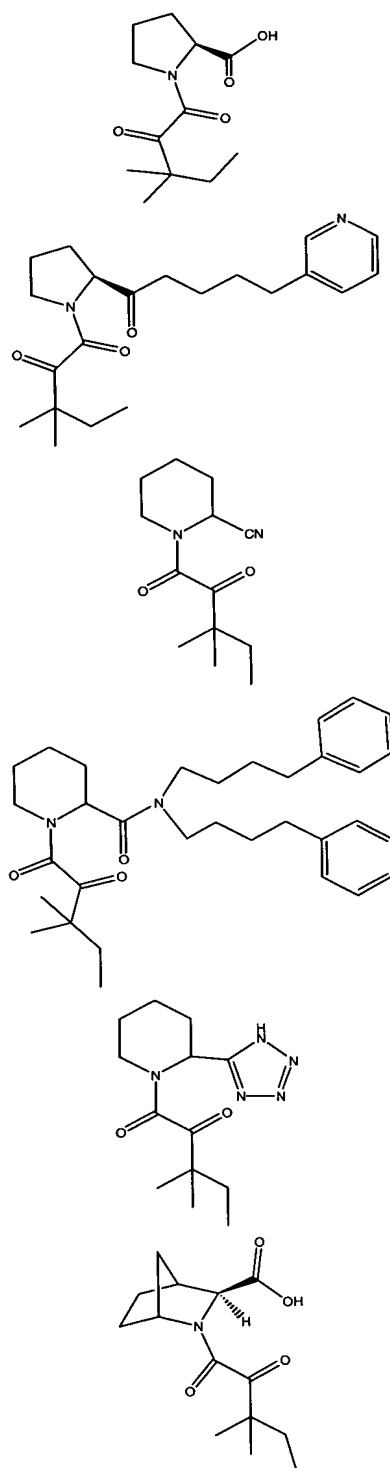
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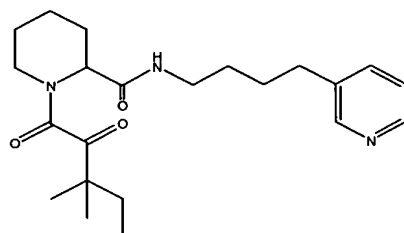
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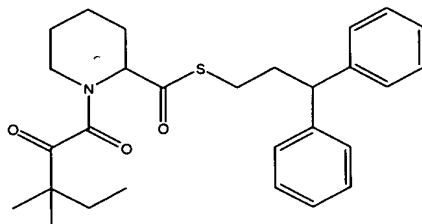


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and



or a pharmaceutically acceptable salt, solvate or ester thereof.